THE MAGAZINE OF

Standards

. . . how standards serve the wood industry — pages 164; 169

JUNE, 1959

THE MAGAZINE OF

Standards

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

VOL. 30 JUNE, 1959 No. 6

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Our Cover: One of the standard tests for wood listed in the article "How Standards Serve the Wood Industries" (page 164) is the static bending test on small clear specimens of wood. This picture shows the method of conducting the test. Roller-bearing supports and center loading are employed, and a dial gage is provided for measuring deflection.

Photo: U. S. Forest Products Laboratory

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FEATURES

How Standards Serve the Wood Industry. *By L. J. Markwardt* 164

For many years committees of the American Society for Testing Materials have been developing standard tests and specifications which are being widely used in research and for industrial purposes. Many are now recognized as American Standards. Mr Markwardt explains how the standards are used and describes some of the specific test methods.

First Steps Toward Building Code Requirements for Wood. *By Lyman W. Wood* 169

A new report issued by the Forest Products Laboratory offers a basis for addition of building code requirements for wood or wood-based materials to the series of American Standard building codes already approved by ASA. The report will be referred to an ASA sectional committee for consideration.

Common Names . . . Aid in Communication. *By Herbert L. Haller* 172

In three years, Committee K62 has developed 18 common names for pest control chemicals and these names have been approved as American Standard. Agreement on common names helps prevent confusion and makes it easier to refer to the chemicals used in the production of the many new fungicides, insecticides, and rodenticides. International interest has also been shown in development and use of common names.

New Mercury-Arc Converter Standard Reflects International Work. *By Betty K. Roe* 175

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Are specifications standards? Confusion in the use of these terms occurs in the electronics industry as well as in others. Here is a breezy discussion of the problem of semantics in standardization.

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. . . . marginal notes

• CYRIL AINSWORTH'S DINNSA column, which appears on the inside back cover of *The Magazine of Standards* each month, is omitted from this issue. Mr Ainsworth is on a special assignment with the Department of Defense (see News Briefs, page 152, *The Magazine of Standards*, May 1959). When he returns to ASA on full-time basis, the columns will be resumed.

• COMMON NAMES for pesticide chemicals (page 172) may be followed by common names for food additives. On May 26, a general conference recommended that ASA initiate a project to develop common names to replace the complex chemical names of substances whose presence must be declared under the Food, Drug, and Cosmetic Act on labels for manufactured food.

• THE NEW PROJECT recommended to ASA to help handicapped people use the facilities of public buildings (page 188) is largely the result of one man's ten-year campaign. Hugo Deffner was confined to a wheel chair by polio at the age of 21. At that time he was a farmer. After his disability, he decided to build up an insurance business in his home town. But he found that many of the people to whom he wanted to sell insurance had offices on the second floor or higher—beyond the reach of his wheel chair. He moved to Oklahoma City, where they had elevators. But, often a dozen or more steps led up to the entrance. He couldn't use rest rooms, drinking fountains, phone booths, revolving doors, or automatic elevators.

He began a campaign to call the problem to public attention and won the support of the President's Committee on Employment of the Physically Handicapped. The committee asked ASA to initiate a project, and a general conference has confirmed the request. After the Washington meeting, Major General Melvin J. Maas, USMCR (Ret), chairman of the President's Conference, commented: "The new American Standards that can be expected to grow out of this project will be much more than a set of mechanical specifications. For people in wheel chairs they will mean a new standard of living."

This Month's Standards Personality

J. G. HENDERSON, known familiarly as "Jack," enthusiastically supports the cause of standardization for the benefit of the chemical industry. He is convinced that the industry has much to be gained by taking advantage of standardization techniques at the national level. Acting on this conviction, Mr Henderson took a leading part in organizing the Chemical Industry Correlating Committee (now the Chemical Industry Advisory Board) of the American Standards Association, and has been chairman continuously since its organization in 1949. Under his leadership the Board has brought about the development or revision of a number of standards beneficial to the chemical industry affecting equipment or materials used by the industry.

As head of the Standards Department of the Union Carbide Chemicals Company, a Division of Union Carbide Corporation, Mr Henderson knows the chemical industry's standards problems intimately. He has been with the company for 28 years. In 1934, he helped to organize the company standards group that has now developed into the standards department. He has headed the standards work since it was first started.

In addition to his standards leadership in his company and in ASA, Mr Henderson was one of those responsible for bringing about the organization of the Mechanical Technical Committee of the Manufacturing Chemists' Association. This committee is concerned exclusively with determining the needs of the chemical industry with relation to standards, and with judging the feasibility of developing the standards needed. The committee's recommendations are referred to the Manufacturing Chemists' Association and, upon approval by the Association, are sent for development into standards to appropriate national standardization agencies, such as those agencies that operate under the procedures of the American Standards Association. Mr Henderson has been a member of this committee since its organization in 1956.

He is a prolific writer and speaker on the subject of company, industry, and national standardization, and has presented papers at the Centennial of Engineering (Chicago), the National Chemical Exposition (Cleveland), the Army Chemical Corps Standardization Symposium, as well as before such organizations as the Synthetic Organic Chemical Manufacturers Association, the American Chemical Society, and the National Conferences on Standards. As chairman of the program committee for the Seventh National Conference he was instrumental in developing sessions of particularly broad general interest.

In addition to technical articles on standardization, materials, equipment, design, and metallurgy, he is author of the *Metallurgical Dictionary*, published by Reinhold, 1953.

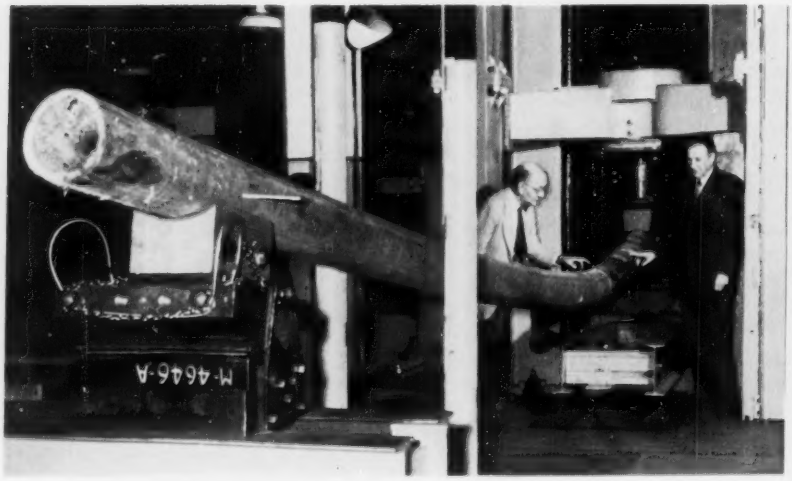
A registered professional engineer, Mr Henderson's professional activities have included service as a director of the West Virginia Society of Professional Engineers, and president of the Society's Charleston Chapter.

Mr Henderson is an ardent sports fan, although not so much of a participant. He maintains that his family and his home are his hobbies. He and his wife have three sons and a daughter. The youngest son and the daughter live at home. One of the sons is married and lives in Washington, D. C. The other is an honor student at Georgetown University.

How Standards

THE FIELD OF FOREST PRODUCTS in its various aspects comprises one of our largest and most important groups of industries. Not only does it cover lumber—the production of which continues at about 35 billion board feet per year—but also pulp and paper, the rapidly growing fiberboard and particle board industry, and a wide range of chemical industries. Some of these are among the oldest, others among the newest in our free enterprise system. Naturally, standard specifications and methods of test play an important role in the field of forest products utilization.

Some 12 standard specifications and methods of test in this field have been approved by the American Standards Association, and currently 36 others are being reviewed. The methods and procedures are in extensive research and industrial use and have been developed over a period of years by ASTM Committee D-7 on Wood, one of the oldest of ASTM technical committees. Because of their potential interest, the titles of the various standards are given on page 168. The scope of these standards includes nomenclature and definitions of



Above—Method of conducting the test on compression parallel to grain of wood. A self-centering spherical loading block is used to insure alignment, and a roller extensometer of the optical lever type is used to measure the compressive strain.

Right—Western larch pole under test showing deflection at maximum load. With L. J. Markwardt (right) is R. P. A. Johnson, former chief of the Division of Physics and Engineering, U.S. Forest Products Laboratory.

Serve the Wood Industries

by L. J. MARKWARDT

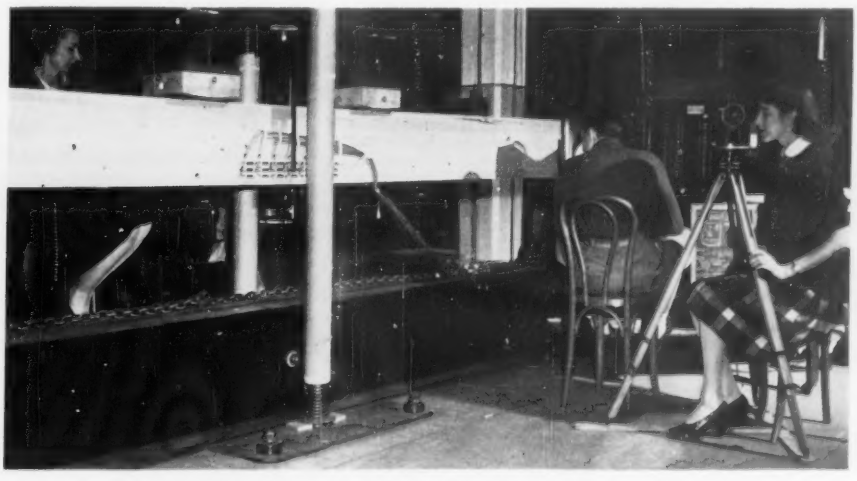
terms relating to wood; methods of evaluating the mechanical and physical properties of wood, modified wood, veneer, plywood, fiberboards, particle boards, and wood and wood-base laminates; methods of establishing structural grades of timber; methods for chemical analysis of wood; specifications for wood preservatives and methods for their chemical analysis; specifications for piles and paving blocks; and specifications for modified wood with dimensionally stabilized properties.

Importance of Methods

One way to appraise the importance of such standards is to observe their extensive use for research and industrial purposes. Another way is to consider how you would proceed without them if you were called on to determine the mechanical properties of different species of wood, to analyze the composition of a wood preservative, or to establish structural grades of lumber. In conducting mechanical tests on small clear specimens of wood, for example, how would you select the material? In conducting the static bending test, what should the size of specimen be, or the span-depth ratio? What type of loading and what rate of loading would you decide on? These are all important details, because the results obtained are directly dependent on how the test is made. This attention to detail applies to methods of chemical analysis as well as to physical and mechanical tests.

Of course, questions like these, which were very real some years ago, are now largely academic, because all such details are fully covered in ASTM D 143-52, Standard Methods of Testing Small Clear Specimens of Timber. The methods have been widely publicized

MR MARKWARDT is assistant director of the Forest Products Laboratory, Forest Service, U. S. Department of Agriculture. The Laboratory is maintained at Madison, Wisconsin, in cooperation with the University of Wisconsin. Mr Markwardt, who is chairman of ASTM Committee D-7 on Wood, represents the American Society for Testing Materials on the ASA Sectional Committee on Wood, O5. He is chairman of the committee on the Safety Code for Portable Wood Ladders, A14, and is an alternate member of the committee on Coordination of Dimensions of Building Materials and Equipment, A62. Mr Markwardt is also a member-at-large on ASA's Construction Standards Board.



Method of testing glued laminated structural beam under third point loading, ASTM D 198-27. Deflection at center is being measured by means of the transit and strain at a number of points on the face is being observed by means of an automatic recorder.

Form of specimen, grips, and extensometer for measuring strain are shown in this illustration of the method of conducting the test on tension parallel to grain of wood.

and in varying detail have been used internationally in a considerable number of countries for evaluating the physical and mechanical properties of wood. Over a million tests have been made at the U. S. Forest Products Laboratory alone under the procedures of ASTM D 143-52.

Problem of Test Methods for Wood

Any development of test methods for evaluating the properties of wood and wood-base materials at once involves consideration of their complex structure. Wood is formed of myriads of elongated cells that are oriented vertically in the living tree. These cells are bonded with a complex substance called lignin. The character, orientation, and arrangement of the fibers make wood an anisotropic material. For all practical purposes, however, it may be treated as orthotropic with three principal axes of symmetry—the longitudinal, the radial, and the tangential. The assumption of three structural axes results in a multitude of properties including three values of tensile strength, three of Youngs' moduli, three of shear moduli, six of Poisson's ratios. The values of the properties may vary with grain direction as much as 40 to 1. The complete and precise evaluation of the many properties of wood and wood products therefore requires employment of numerous techniques, a great range of extensometer and testing machine equipment, and the development of reliable and satisfactory test methods.

Another feature of the mechanical test methods is the detail regarding rate of application of load. Wood and wood-base materials are among those that are sensitive to the effect of this variable on strength. In general, the more rapid the application of load, the higher the test values obtained. Hence, to obtain comparable results, the speed of testing must be standardized along with other details. Extensive studies on the effect of rate of loading have been carried out as a basis for clarifying the principles involved and for permitting estimates of strength at other than a standard rate of loading. The rates of loading specified were developed to permit the accurate observation of load and strain increments, where required, and to provide a standard procedure to afford comparable results.

Many Kinds of Tests Included

Though a standard not infrequently covers the procedure for a single kind of test, a number of the ASTM standards presented on wood and wood-base material include a complete system of tests for an over-all evaluation of a considerable number of mechanical and physical properties, together with methods of selection, sampling, and conditioning the material. Three such standards are the Standard Methods of Test for Evaluating the Properties of Building Fiberboards; Standard Methods of Test for Veneer, Plywood, and Other Glued Veneer Constructions; and Standard Methods of Testing Small Clear Specimens of Timber. The last, for example, includes complete details for conducting eight different mechanical tests: static bending, compression parallel to

grain, impact bending, toughness, compression perpendicular to grain, hardness, shear parallel to grain, cleavage, tension parallel to grain, tension perpendicular to grain, and nail withdrawal. If at any time a method for a single kind of test is required, a suitable method is thus also provided.

Test Methods for Wood Poles

One of the comprehensive research studies employing test methods covered in these standards is the current ASTM wood pole research program. The program involves the testing of full-size poles of five species in both the untreated and treated condition. Tests were also included to compare the results obtained by the cantilever method with those by the machine test method. In all, the research program covers tests of some 600 full-size poles and some 15,000 tests of small specimens. The principal purpose has been to obtain basic data on the relative strength of species in the form of full-size poles, both treated and untreated, and to correlate the results with tests of small clear specimens as a basis for developing specifications and design stresses.

It is obviously of little value to conduct an extensive research testing program unless the data are to be put to work. Here again the ASA comes into the picture in the application of the results of the ASTM wood pole research testing program unless the data are to be put on Wood Poles was challenged with the need of data on the strength of full-sized poles, the pole test program as described was outlined, and its implementation was supported by contributions from numerous interested pole producers, pole users, utilities, and public agencies. The results are now being analyzed and will be made available to Sectional Committee O5 for an authentic revision of present wood pole specifications and stresses.

Example of Test Method Development

The development of a test method for evaluating the tensile strength of wood parallel to the grain was one of the most difficult, and illustrates the research and progressive evolvement that goes into a single procedure. The difficulty in working out a satisfactory method results from the exceedingly high tensile strength of wood as compared with the lower shear strength and the perpendicular to grain properties that are involved in applying the tensile load to the specimen. In one of the earlier test specimens, employing a reduced cross section of ½ x ½ inch, shear failures in the supports frequently occurred, so that the specimen did not fail in tension. Another specimen employing wedge grips at the support did not prove satisfactory because of the excessive across-the-grain crushing and slippage at the grips. The form of specimen presently recommended in ASTM D 143 largely avoids these difficulties and has been used successfully to test a variety of softwood and hardwood species in both the green and dry conditions. Uniform rate of loading is obtained, and the tests can be conducted rapidly.

How are standards developed and how much research and effort go into their technical requirements? Some of the methods require years of research and exploration by many agencies, numerous meetings to review and agree on detailed requirements, and the aggregate total cost may run into the hundreds of thousands of dollars. A good example of a standard in this category is one of the newest of the methods formalized by adoption, namely ASTM D 1413-56T, Tentative Method of Testing Wood Preservatives by Laboratory Soil-Block Cultures.

The usual and accepted method of evaluating the effectiveness of wood preservatives is by exposure of treated specimens to contact with the ground in outdoor sites. There is no substitute for this procedure for ultimate evaluation of decay resistance, but the results do not become available until many years after starting the tests. The long-standing demand for a more rapid, yet reliable method has at last been achieved in this standard. The new method for testing wood preservatives is a laboratory procedure based on research in progress for some 15 years. Initial trials of the soil-block method were made by the Bell Telephone Laboratories. Similar work has been in progress at the Forest Products Laboratory for the past ten years. Research on the method also has been carried out at several other governmental, state, and private laboratories in the United States and Canada. The developmental work during the past five years has been accompanied by actual use of the method in supplying information on a number of problems. The method is being used as a laboratory tool in Australia, New Zealand, Sweden, Indonesia, and several other countries, as well as in the United States and Canada. This method has been available in published form for over two years, and will be reviewed by ASA in the near future for possible approval as American Standard.

Fiberboards and Particle Boards

The adoption of new standard methods must keep abreast of new commercial product developments. An example is the fiberboard industry—comprising the manufacture of insulation boards, hardboards, particle boards, and chipboards—that has continued to grow and expand as its products have found more diverse uses and broadened markets. Of particular significance in this development is the key role played by this material in effecting improved utilization of the forest crop through reduction in wood wastes and residues. The growth of the industry has emphasized the need of reliable information on the characteristics and the physical and mechanical properties of the various types of products. Accordingly, the establishment of test methods to evaluate the properties of fiberboards has been under study for over a decade.

In this brief review, some of the extensive research involved in the preparation of standard methods and specifications for wood and wood-base materials have been pointed out. The specifications are in extensive current use and provide a wide variety of recommended practice in the field of wood utilization.

STANDARD DEFINITIONS, SPECIFICATIONS, AND METHODS OF TEST RELATING TO WOOD AND WOOD-BASE MATERIALS

Methods of Conducting Physical and Mechanical Tests

ASTM No.		*Amer Std No.*
D 143-52	Methods of Testing Small Clear Specimens of Timber	O4.1-1958
D 198-27	Methods of Static Tests of Timbers in Structural Sizes	O4.2-1927 R 1958
D 805-52	Methods of Testing Veneer, Plywood, and Other Glued Veneer Constructions	O7.1-1958
D 1037-56T	Test for Evaluating the Properties of Building Fiberboards	O8.1-1958
D 1036-58	Methods of Static Tests of Wood Poles (Earlier edition approved as	O4.4-1958)
D 245-57T	Methods for Establishing Structural Grades of Lumber	O4.3-1958

Nomenclature and Definitions

D 1165-52	Nomenclature of Domestic Hardwoods and Softwoods	O4.6-1958
D 9-30	Definitions of Terms Relating to Timber	O4.5-1958
D 324-41	Definitions of Terms Relating to Timber Preservatives	
D 1038-52	Definitions of Terms Relating to Veneer and Plywood	O7.2-1958
D 1554-58T	Definitions of Terms Relating to Wood-Base Fiber and Particle Panel Materials	

Specifications for Wood Products

D 25-58	Specifications for Round Timber Piles	O6.1-1959
D 52-58T	Specifications for Wooden Paving Blocks for Exposed Platforms, Pavement, Driveways, and Interior Floors Exposed to Wet and Dry Conditions	
D 1031-55	Specifications for Creosoted End-Grain Wood Block Flooring for Interior Use	O10.1-1958
D 1324-57T	Specifications for Modified Wood	O12.1-1958

Wood Preservatives

D 38-33	Methods of Sampling and Testing Creosote
D 168-30	Test for Coke Residue of Creosote
D 199-50	Methods of Chemical Analysis of Zinc Chloride

Wood Preservatives . . . Continued

ASTM No.		*Amer Std No.*
D 246-49	Test for Distillation of Creosote	
D 347-33	Volume and Specific Gravity Correction Tables for Creosote and Coal Tar	
D 367-49	Test for Benzene-Insoluble Matter in Creosote	
D 368-33	Test for Specific Gravity of Creosote	
D 369-33	Test for Specific Gravity, 38/15.5 C, of Creosote Fractions	
D 370-58	Test for Water in Creosote	
D 390-53	Specifications for Creosote	
D 391-53	Specifications for Creosote-Coal Tar Solution	
D 432-50	Specifications for Zinc Chloride	
D 453-41	Test for Tar Acids in Creosote and Creosote-Coal Tar Solutions	
D 1032-50	Specifications for Chromated Zinc Chloride	
D 1033-50	Methods of Chemical Analysis of Chromated Zinc Chloride	
D 1034-50	Specifications for Tanalith	
D 1035-50	Methods of Chemical Analysis of Tanalith	
D 1271-56	Specifications for Copperized Chromated Zinc Chloride	
D 1272-56	Specifications for Pentachlorophenol	
D 1273-56	Methods for Chemical Analysis of Copperized Chromated Zinc Chloride	
D 1274-56	Methods for Chemical Analysis of Pentachlorophenol	
D 1325-56	Specifications for Ammoniacal Copper Arsenite	
D 1326-56	Methods for Chemical Analysis of Ammoniacal Copper Arsenite	

Methods of Chemical Analysis

D 1102-56	Test for Ash in Wood
D 1103-55T	Test for Alpha-Cellulose in Cellulosic Materials
D 1104-56	Test for Holocellulose in Wood
D 1105-56	Method for Preparation of Extractive-Free Wood
D 1106-56	Test for Lignin in Wood
D 1107-56	Test for Alcohol-Benzene Solubility of Wood
D 1108-56	Test for Ether Solubility of Wood
D 1109-56	Test for One Percent Caustic Soda Solubility of Wood
D 1110-56	Test for Water Solubility of Wood
D 1166-55T	Test for Methoxyl Groups in Wood and Related Materials

L. J. Markwardt, left, points out detail of test of southern yellow pine pole in the million-pound testing machine at the Forest Products Laboratory to G. Q. Lumsden, Bell Telephone Laboratories, chairman of ASA Sectional Committee O5 on Wood Poles; Harold Armfield and Walter Hecker of Wisconsin Telephone Company, Milwaukee; Dorwin E. Kennedy, Canadian Forest Products Laboratory; O. A. Hanna, Bell Telephone Laboratories; I. V. Anderson, U.S. Forest Service, Missoula, Montana.

Figure 1. Early example of glued-laminated construction based on engineering design, these laminated arches span a 46-foot-wide service building at the U.S. Forest Products Laboratory, Madison, Wisconsin.

First Steps Toward Building Code Requirements for Wood

by LYMAN W. WOOD

SIGNIFICANT PROGRESS WAS MARKED recently on an American Standards project of long duration when the U. S. Forest Products Laboratory issued a report entitled "Recommended Building Code Requirements for Wood or Wood-Base Materials." Nearly 20 years ago, on request of the American Standards Association to the Secretary of Agriculture, the Laboratory at Madison was named as a co-sponsor of ASA project A61, Building Code Requirements for Wood. Interrupted by World War II, the work was resumed in 1948 with the cooperation of the Housing and Home Finance Agency, and a preliminary draft was completed for industry review in 1950. In 1956 the preliminary draft was completely revised and brought up to date. Following reviews and comments by a number of interested organizations, the final report was issued late in 1957 and is now available as Forest Products Laboratory Report No. 2075.

The American Standards Association has initiated the development of a series of related building standards. This program, under the supervision of the ASA Construction Standards Board, includes the preparation of more than a score of standards covering the fields of the average building code. These, with a recommended form of code arrangement and a list of source material, are being prepared for the information and guidance of those who have responsibility for formulating or adopting building codes. The American Standards already published include, among others, the following: Building Code Requirements for Masonry, A41.1-1953; Building Code Requirements for Reinforced Gypsum Concrete, A59.1-1954; Building Code Requirements for the Design, Fabrication, and Erection

MR. WOOD, engineer with the Forest Products Laboratory, Forest Service, U.S. Department of Agriculture, represents the department on ASA Sectional Committee O5 on Wood Poles. He is also an alternate member of ASA's Construction Standards Board. The Forest Products Laboratory is maintained at Madison, Wisconsin, in cooperation with the University of Wisconsin.

Figure 2. These experimental prefabricated houses with stressed-skin panels were built by the U.S. Forest Products Laboratory in 1937.

of Structural Steel for Buildings, A57.1-1952; Building Code Requirements for Minimum Design Loads in Buildings and Other Structures, A58.1-1955; and Administrative Requirements for Building Codes, A55.1-1948.

The Forest Products Laboratory has studied building code requirements for wood construction for nearly 40 years. J. A. Newlin, then chief of the Laboratory's Division of Timber Mechanics, was a member of the Building Code Committee organized in the Department of Commerce in 1921. Work at the Laboratory has emphasized housing construction, but other building uses of wood have also been investigated. The Laboratory cooperated with the National Bureau of Standards in developing standard test methods for walls, floors, and roofs of houses and assisted in the preparation of Building Code Requirements for New Dwelling Construction, issued in 1947 by the NBS and recommended by the National Housing Agency, now the Housing and Home Finance Agency.

Basis for Present Publication

The new publication is not in itself intended to be a building code, nor is it intended to replace, as such, the related subject matter in currently established codes. Its recommendations may be considered, in whole or in part, in connection with the development or revision of code requirements. Matters of general application, such as height and area limitations, are not included. It is a summary of technical information on wood construction in a form useful to code-making bodies.

The recommended requirements provide for the use of any materials or methods of wood construction insofar as they can be shown by analysis or test to render satisfactory service; in this way, reference to specific construction details is minimized. Since the requirements are generalized, rather than specific, they need supplementary material to show how their intent may be met. To meet that need, many references to informative publications are made. These references describe generally accepted good practice, and such descriptions may be taken as prima facie evidence of compliance with the generalized requirements. The reference material is thus intended to be advisory rather than mandatory. While 44 such reference publications are listed, it is pointed out that the needs of many communities can be served by eight of the most important ones.

Subject matter is grouped in 26 chapters, as follows: (1) definitions; (2) materials; (3) general design requirements; (4) fastenings; (5) beams; (6) columns; (7) additional design provisions; (8) light-frame construction; (9) masonry-wall-and-joist construction; (10) heavy-frame construction; (11) farm buildings; (12) auxiliary construction; (13) decay and insect protection; (14) glued laminated structural members; (15) structural sandwiches; (16) prefabricated panels; (17) wood diaphragms and horizontal bracing systems; (18) wood trusses; (19) arches and rigid frames; (20) lamella roofs; (21) miscellaneous construction; (22) log construction; (23) pole framing (nonresidential); (24) structural performance testing; (25) inspection of wood buildings; (26) maintenance and repair.

Reflects Research Background

Much of the subject matter of the recommended code requirements stems from a long background of research in wood construction at the Forest Products Laboratory. Some of these items are worthy of mention.

One of the earliest glued-laminated constructions based on an engineering design and confirmed by load testing was a building erected in 1935 at the Forest Products Laboratory (Figure 1). Research on glued-laminated structural members continued through the war years, culminating in the issuance of U. S. Department of Agriculture Technical Bulletin No. 1069, "Fabrication and Design of Glued-Laminated Wood Structural Members," in 1954. A strong background of research and experience was thus available in the preparation of the chapter on Glued-Laminated Structural Members in the recommended code requirements.

A related field of importance is that of stressed-skin panels, in which frame and cover are glued together to make an integral structural unit utilizing the strength properties of both. The roof construction above the trusses shown in Figure 1 was of such panels. An early development related to housing was the construction in 1937 of two experimental prefabricated houses with stressed-skin panels (Figure 2). Research and development continued, and the stressed-skin principle is now utilized by a major part of the prefabricated home industry. The Forest Products Laboratory has taken an active part in securing the acceptance of stressed-skin prefabricated house construction in building codes on the basis of its structural performance.

The sandwich panel is a specialized application of the stressed-skin principle now widely used in building construction. Research on the sandwich panel began at the Forest Products Laboratory in World War II and was directed toward building construction as early as 1947. A recent Laboratory report, "Sandwich Panels for Building Construction," summarizes 12 years of research on the design, construction, and use of structural sandwiches.

Another phase of construction research made use of in the recommended code requirements is that on horizontal diaphragms to resist wind or earthquake pressures. These are designed to serve as floors, ceilings, or roofs, in addition to their function as diaphragms. Design and full-scale testing (Figure 3) at the Forest Products Laboratory have contributed significantly to the use of this kind of structural element.

Status of Building Code Project

The report, "Recommended Building Code Requirements for Wood or Wood-Base Materials," has been received at the American Standards Association, and copies for information have been distributed to the members of the Construction Standards Board. Its status was discussed at a meeting of the Board on November 17, 1958. It was agreed that a sectional committee would be organized to develop an American Standard in the field of requirements for wood and wood-base materials, using the present draft as a basis for review and consideration. The publication now available represents a great deal of research background and knowledge, and is therefore well suited for reference and documentation. The development of an American Standard will insure the general availability of the subject matter and will contribute importantly to the ASA building standards program.

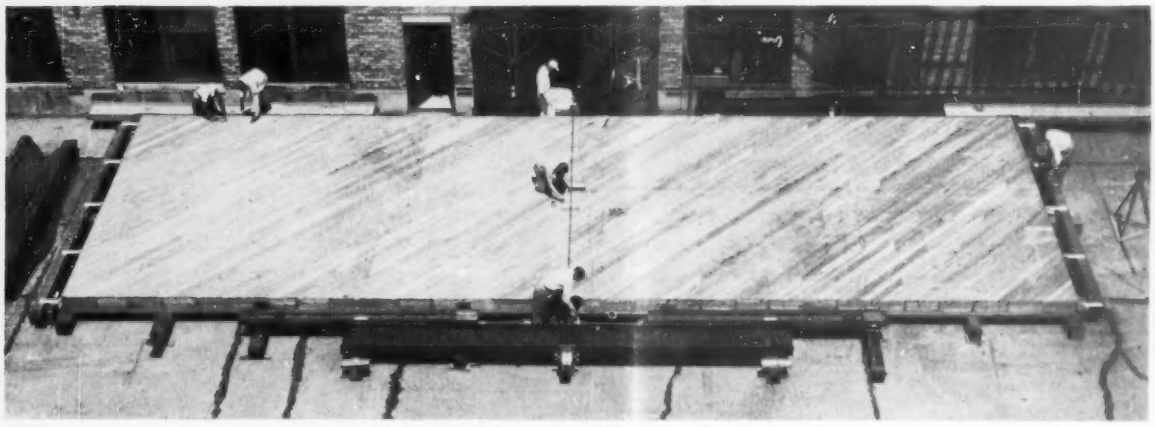


Figure 3. Horizontal diaphragms designed to resist wind or earthquake pressures serve as floors, ceilings, or roofs. In this structural test, load was applied as shown through cable attached to testing machine inside building at U.S. Forest Products Laboratory.

COMMON NAMES...

Aid in Communication

by HERBERT L. HALLER

IN THE THREE YEARS SINCE APPROVAL of the American Standard Procedure for Acceptance of an American Standard Common Name for a Pest Control Chemical, K62.1-1956, 18 common names have been agreed upon and published as American Standard.[1]

Pest control chemicals are the active ingredients, usually synthetic organic compounds, which when combined with a suitable solvent, diluent, emulsifier, or the like, give the finished product, the pesticide, ready for use. The past decade has witnessed the development of an unusually large number of chemicals useful for the control of injurious insects, fungi, weeds, nematodes, and rodents. Many have long or complicated technical names which describe clearly the composition and the structure of the chemical. Such names must be accurate and descriptive but in general they have meaning only to chemists and to certain other specialists. They are difficult to remember and even to pronounce, and they are not adaptable for use in articles, farmers' bulletins, or in labeling of commercial pesticides. Proprietary, brand names, or trade-marked names for chemicals are subject to similar limitations.

For this reason, the U.S. Department of Agriculture is sponsoring Sectional Committee K62 under the procedures of the American Standards Association to develop common names that can be easily pronounced and remembered.

DR HALLER is Assistant to Administrator, Agricultural Research Service, U.S. Department of Agriculture. He is chairman of Sectional Committee K62, Common Names for Pest Control Chemicals.

The 18 American Standard common names already approved and in use attest to the active work being done by this committee since its organization in 1954. How useful this work can be is indicated by the fact than an amendment to the Federal Seed Act passed last August requires that "commonly accepted coined" names be used on labels of seed treated with a chemical for protection against pests. Also, the Food and Drug Administration, in announcing tolerances for pesticide residues under Public Law 518 (83rd Congress), is using common names of the pesticides or the exact chemical name. The Food and Drug Administration plans to avoid trade-mark names.

In the early stages of laboratory studies some of these chemicals were designated by a combination of letters or numbers taken from component groupings of the compound and these designations have been carried into commercial use. Examples are DDT, BHC, PDB, DD, 2,4-D, 1080. All of these are firmly established both in the scientific literature and in the public mind. However, the use of initials or numbers or a combination of the two is undesirable for several reasons. Both forms are objectionable to libraries from the standpoint of indexing. DDT has on occasion been confused with the soil

[1] They are monuron, diuron, erbon, fenuron, neburon, dalapon, silvex, ovex, ethion, diphacinone, dicapthon, phosphamidon, dimethoate, ronnel, zoalene, chlorbenside, dodine, and phorate. The chemicals for which these are the common names are listed in the American Standards Price List, page 25.

fumigant DD. For many years mono-calcium phosphate, which is used both as a drug and in foods, has been designated MCP. Several years ago this same designation was adopted for a weed killer. In the early stages of its development the insecticide now known as technical chlordane was designated as 1068. In at least one instance during the war the very toxic rodenticide 1080 was confused with 1068.

The problem of developing short names of a type called variously "generic," "nonproprietary," and "coined common" is essentially not a new one. It has received attention in other fields, especially pharmaceutics. In an article in the *Journal of American Medical Association,* 152, (9) 819 (1953), Conley states, "The first organized attempt to standardize the popular nomenclature of new chemicals was undertaken in 1911 by the Council on Pharmacy and Chemistry. Realizing the need for a common name for the chief constituent in the various brands of the blood-pressure-raising principle of the adrenal glands, the Council adopted epinephrin(e) as such a term. Further impetus to the Council's action was provided by the Federal Trade Commission 1917. In carrying out the provisions of the Adamson Act, the Commission licensed American firms to use U. S. patents on certain synthetic drugs owned by German citizens. However, it required all licensees to use generic designations for the article. Arsphenamin(e), barbital, cinchophen, and procain(e) were the common names required to be used in association with the drugs trade-marked, respectively, as Salvarsan, Veronal, Atophan, and Novocain.

"The next significant step in the medical employment of generic names occurred in 1920 when a prominent pharmaceutical firm began using short, coined, nonproprietary names in connection with its trade-marked names. Products were marketed under the trade name followed by the statement 'brand of ——, a nonproprietary name.' The generic names were coined by the firm and accepted by the Council on Pharmacy and Chemistry as nonproprietary synonyms for inclusion in New and Nonofficial Remedies. In several instances, the coined name ultimately became the official name for the drug by virtue of its adoption by the United States Pharmacopeia.

"The celebrated 'aspirin' and 'cellophane' court decisions further stimulated manufacturers to use generic names in conjunction with trade names. In both cases, it was ruled that the firms lost their trade-mark rights to 'aspirin' and 'cellophane' because the names had become accepted as popular designations for products represented by these names and, therefore, were not associated in the public mind as trade names. The pharmaceutical industry, as a group, was the most sensitive and immediately responsive to the legal precedents that these decisions established. As a consequence, an overwhelming majority of the manufacturers of prescription chemicals cooperate with the Council in the selection of generic nomenclature for drugs."

Until World War II there was comparatively little need for an organized effort to coin common or trivial names for pesticidal chemicals, because relatively few new ones reached the commercial stage of use. The technological revolution in the pesticidal chemical industry, fostered by World War II, brought forth a large number of new products. Most of these were synthetic organic chemicals with more or less complicated structures and unwieldy systematic names. Attention was soon focused on the advantages of having short names that could be easily remembered by technicians and users. To the late Dr S. A. Rohwer must go the credit for pioneering an organized attempt in this direction. In April, 1947, Dr Rohwer, as chairman of the newly formed Interdepartmental Committee on Pest Control, a group composed of representatives of the various departments of the Federal Government interested in pest control, approached several scientific groups having an interest in pest control chemicals and solicited their cooperation. Among those who responded promptly and cooperated fully were the American Medical Association, the American Phytopathological Association, the American Chemical Society, the American Association of Economic Entomologists, now the Entomological Society of America, industry, and others. The project was well received, and between 1947 and 1951 coined names for eight insecticidal chemicals, five fungicides, and one rodenticide were developed. The international aspects of the problem were recognized by Dr Rohwer, who sought the cooperation of Canadian and British workers.

That there is a world-wide interest in the subject is evidenced by the fact that at the Third International Congress of Crop Protection, held in Paris in September, 1952, a special session was held to consider the problems involved. After devoting a full morning to various aspects of the problem, the following recommendation was made to the Executive Council of the Congress: This Congress, having considered the problems arising in the nomenclature of the many complex substances used in the field of crop protection (pest control) and the desirability of achieving world-wide uniformity in the common names for these compounds, recommends:

1. That where they do not already exist, organizations should be set up by members of the congress in their own countries to adopt common names for chemicals used in crop protection. 2. That such organizations should establish close liaison with each other and with the International Organization for Standardization and, if possible, should elicit the cooperation of the Committee on Phytopharmacy.

Partly as the result of the Paris conference, British workers proposed an international project under the auspices of the International Standards Organization. Working through the American Standards Association, both the Interdepartmental Committee on Pest Control and its cooperating groups have agreed to participate in an international effort. A project has been established and is known as ISO/TC 81.

While an international approach to the problem is essential, there was a question in the minds of some

as to whether or not an international organization might be somewhat slow in arriving at names satisfactory to all. Also, at a meeting of the Interdepartmental Committee on Pest Control, held on September 24, 1953, the committee decided to discontinue the approval of coined names for pesticidal chemicals. This action was decided upon because the committee was organized primarily as a coordinating group and not an operational one. Furthermore, the committee does not have adequate clerical assistance to carry out the necessary extensive correspondence. For these reasons it suggested that American Standards Association explore the possibility of organizing a national project on the development of common names for pest control chemicals.

Following several meetings arranged by the American Standards Association, and attended by the several groups mentioned earlier, as well as others, a formal committee, ASA Sectional Committee K62 on Common Names for Pest Control Chemicals, was established on February 25, 1954. The scope of the committee is to develop common names for pest control chemicals having potential use as pesticides, including insecticides, fungicides, rodenticides, herbicides, nematocides, defoliants, and plant growth regulators, where such names appear desirable for popular designations of the chemicals. The United States Department of Agriculture accepted the ASA invitation to assume administrative sponsorship of the committee. The National Agricultural Chemicals Association offered to assist the Department in its sponsorship functions relating to duplication and circulation of printed material. The personnel of the committee consists of representatives of the following organizations:

American Chemical Society
American Medical Association
American Phytopathological Society
American Society for Horticultural Science
American Society of Plant Physiologists
Association of American Pesticide Control Officials
Canadian Standards Association
Chemical Specialties Manufacturers Association, Inc
Entomological Society of America
Interdepartmental Committee on Pest Control
National Agricultural Chemicals Association
U. S. Trade Mark Association
Weed Society of America

Dr H. L. Haller, assistant to administrator, Agricultural Research Service, United States Department of Agriculture, is chairman, and J. A. Noone, National Agricultural Chemicals Association, Washington, D. C., is secretary of the committee.

The committee is aware that it is exceedingly difficult to coin common names that do not infringe or encroach on proprietary and nonproprietary names in various fields. It is also aware of the difficult problem of preventing trade-marking of a name in a foreign country which has hitherto accepted this name. However, it believes that agreement on suitable terminology can come only through cooperation of the various groups concerned. A greater exchange of information, standards, proposed terms, and other pertinent data by responsible agencies, both here and abroad, should bring about the desired results.

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THREE BIG DAYS FOR NATIONAL STANDARDS

New Mercury-Arc Converter Standard Reflects International Work

by BETTY K. ROE
General Electric Company; Secretary, ASA Sectional Committee C34.

"THE NEW AMERICAN STANDARD will be of outstanding value to those dealing with rectifiers and other electronic equipment used for power conversion purposes," said C. H. Willis in 1949 when the first edition of the American Standard Pool-Cathode Mercury-Arc Power Converters, C34.1-1949, was published. Dr Willis at that time was chairman of the Committee on Electronics of the American Institute of Electrical Engineers and chairman of ASA Sectional Committee C34 on Mercury-Arc Rectifiers. Now, ten years after publication of the first edition, the standard has been revised and published as American Standard Practices and Requirements for Pool-Cathode Mercury-Arc Power Converters, C34.1-1958. Both editions were sponsored by the Committee on Industrial Power Rectifiers of the American Institute of Electrical Engineers, and the most recent edition has been approved not only by this committee but also by the AIEE Standards Committee and ASA Sectional Committee C34.

During these ten years, experience has confirmed Dr Willis' opinion that standardization of mercury-arc rectifiers is important, because such equipment finds application in nearly every industry where electrical power is used. The standard has proved to be valuable to users as a guide in writing specifications for rectifiers which they may contemplate purchasing. It also helps a user in evaluating various manufacturers' bids on the equipment. Thus, the standard offers valuable aid to both user and manufacturer in carrying out mutually profitable business relationships.

International development had an effect on the 1958 revision. In 1957, the International Electrotechnical Commission issued IEC Publication 84, Recommendations for Mercury-Arc Converters. This publication influenced the revision of the 1949 edition, and many sections of the revised standard are in substantial agreement with the international recommendation.

In detail, fifteen new definitions have been added in Part I of the revised standard, and minor changes have been made in a number of previous definitions, in the table of letter symbols, and in some circuit nomenclature. Four new circuits were added and corrections made in the table of rectifier circuits. Definitions that also appear in the American Standard Definitions of Electrical Terms under the ASA C42 project have been correlated and reference noted in American Standard C34.1-1958.

Parts II and III covering "Standards" and "Test Code," respectively, have been revised considerably. Some of the material has been shifted from one section to the other for logical sequence. Test specifications have been revised to provide more comprehensive coverage of rectifier components. Cross references have been added to tie together the related sections of Parts II and III.

Part IV, "Recommended Practice and Operating Guide," has been generally revised with some additions and deletions. References to pertinent AIEE committee reports offer a guide to more complete information on some of the subjects.

Part V, "Rectifier Transformers," is not a complete standard on rectifier transformers. It covers mainly those aspects of rectifier transformers wherein they differ from ordinary power transformers. A new standard on rectifier transformers will be issued this year with the ASA designation C57.18. Part V contains several new tables as well as revised tables that will appear in C57.18.

Copies of American Standard C34.1-1958 can be obtained from the American Standards Association at $1.40 each.

LET'S SPEAK ENGLISH: Standards or Specifications?

by MARCUS A. ACHESON
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Definitions in the electronic industry—
Standards—
organic, systematic coordination of principles embodied in written documents that are adopted voluntarily by an association or other organized body of people.
Specification—
1) the minutely detailed terms of a contract which is restricted to the negotiating parties, as, for example, the buyer and seller. A specification may or may not borrow any of its terms from a set of standards, and the very terms that make it a specification are those that are not in any way related to standards but are only the legalities of a contract.
2) a specifying, or designation of particulars (see Webster's dictionary, meaning No. 2).

IN TRYING to find a way to untangle the confusion that has come to surround the meanings, applications, consequences, and limitations of Standards and Specifications in their differing meanings, I was completely stalled at first because it seemed that this paper should not be necessary. There was, however, something familiar about the situation, and, in the course of time, I remembered what it was. It was a pun from the British magazine *Punch*. An Oxford student, who was naively unaware of the work of the great French philosopher, Descartes, overtook one of his professors on the street. During their conversation, the professor asked the student whether he had decided on his thesis. The student said *yes, he had*. He was going to expound a NEW philosophy. It was: "I am, therefore I think." After a brief but stunned silence the professor said, "But haven't you got Descartes before the horse?"

The import of the professor's remark suggested the proper treatment for this paper. Getting the cart before the horse is only part of the trouble that arises when we glibly interchange "specifications" with "standards"; for there is an intimate sort of relationship between the two that the professor might describe as being quite like that which exists between horseflies and horses. That relationship deserves serious attention.

Under the impact of needed reliability for increasingly complex electronics, we write increasing numbers of component specifications with the expectation of controlling our difficult electronic situation.

This specification writing is often undertaken in an atmosphere of slight hysteria created by the realization that control of the electronics situation is far overdue. Thus, we have no time to create "standards" before writing "specifications," since the writing of true standards is a properly deliberate affair. Writing of standards must be deliberate, otherwise the standard may be no standard at all. The amount and the sort of deliberation

EDITOR'S NOTE: This article represents Mr Acheson's personal viewpoint. Comments will be welcomed.

required to produce a trustworthy standard is well known from long experience of standardizing organizations in producing trustworthy standards.

We can, however, write specifications without deliberation, since a specification can, under some circumstances, be a collection of statements concerning those characteristics we desire in a product. The desire to attain certain characteristics, and the statement of these desires is a proper objective, particularly for the development of a product. However, the statement of objectives in a specification, without the deliberation necessary to determine facts for writing a standard, in no way makes these objective characteristics a fact.

Many people, however, are likely to believe that a specification, because it is an official-looking document, issued perhaps through an authoritative channel, contains nothing but facts.

This writer does not wish to mislead anyone on the trustworthiness of specifications which incorporate previously prepared and accepted standards, or which have been prepared in the atmosphere of careful deliberation of facts necessary to determine a standard. This writer does wish, however, to distinguish specifications which are horseflies from those specifications which are horses. We continue, therefore, to note several distinctions.

Standards are an organic, systematic coordination of principles embodied in written documents that are adopted voluntarily by an association or other organized body of people.

A *specification* (as generally used in the electronic industry) is the minutely detailed terms of a contract which is restricted to the negotiating parties, as, for example, the buyer and seller. A specification may or may not borrow any of its terms from a set of standards, and the very terms that make it a specification are those that are not in any way related to standards but are only the legalities of a contract.

The confusion of specifications with standards may arise from the fact that standards as such are present somehow or other in the minds of the contracting parties, or those writing the specification.

This type of specification can properly cover only one transaction, or be renewed in toto. Different specifications will be different contracts even if they incorporate many or all of the same standards. A specification may be written without identification of the negotiating parties but it is only a dead spec until the proper signatures are affixed to the dotted lines to bring it alive.

Standards are just the opposite. There is nothing contractual or enforceable about standards. They are so constituted by concept that they are capable of evolving according to the fundamental principles of their nature. They are in no way a fixed instrument and are, therefore, capable of improvement and of transmitting acquired characteristics. To the extent that specifications are nurtured by better standards, they become better specs. But any attempt to make basic improvements in the product by way of specifications has mistaken the fly for the horse.

The foregoing is admittedly exaggerated and oversimplified. It is also deliberate and designed as a sort of shock treatment, because drastic measures are called for if we are to jar our minds back into focus and regain the proper perspective on the application of these two words.

Words as such would not matter, except that they are coupled with consequences; as, for example, finding that the cart is before the horse, or that specifications are misleading and misnamed when any part of them is based on wishful thinking.

In this instance, has it occurred to anyone that we are not only confusing specifications with standards but are also confusing specifications with specifications? An example of the latter is shown in contract specifications that specify something not yet in existence. For example, specifications that incorporate reliability requirements may or may not be realistic. They are true specifications (in the meaning the electronic industry usually associates with that word) only when they are a measure of what we have on hand. Otherwise, they are another kind of specification, that is, a list of desirable particulars. In our industry, that breed of specification had better be labeled with qualifying words, for example, development or objective specification.

A great deal of valuable work has been done under the false label of reliability specifications. But in every case they were actually development specification programs. True, they contained "specifications" of what should be developed. But the word *specification* in that case is not the one we are dealing with in this paper or this industry. Specification as a list of particulars is the No. 2 dictionary meaning. Specifications as the terms of a contract is the No. 3 dictionary meaning and is the one that concerns us.

We have to pay attention to semantics in this case whether we like it or not, because semantics is the science of meanings, and the meaning of the word *meaning* in the strictest sense is: intent, aim, objective. Those words are directives that lead to consequences. Harm is done to electronics when we don't interpret meanings accurately. Utilizing the word *specification* as a contract instrument one moment and as a mere detailed list of particulars the next moment leads to

confusion. Whatever else the word *specification* means to others, it has to mean specification No. 3 to us. Ambiguity in a contract destroys its function, since a contract is limited to what it can enforce. It cannot enforce any list of hopes and wishes.

Webster's specification definition No. 2 (list of particulars), and specification No. 3 (contract) are derived from the word *specific*. These two "specifications" have come to have only a tenuous relation to that stem word. The No. 1 definition of *specification* is derived directly from *specific* and is this: "Determination of a thing in its specific sense or particular characteristic." That meaning is now rarely if ever used. The other two meanings are in daily use, and are the ones that have the electronics industry all fouled up. The specification we are concerned with is the contract instrument and is the one of most vital importance to the electronics industry.

Belaboring the different meanings of these two *specifications* may seem to be splitting hairs, but it is, nevertheless, important to understand the difference between the two.

An example of the correct understanding and use of the two *specifications* in relation to one another can be found in the September 1958 issue of the *IRE Transactions on Reliability and Quality Control*. The article is by E. J. Nucci, Bureau of Ships, and is entitled, "The Navy Specification Program for Reliability." Note the role of the word *program* in that title. If the title had also included the word *development*, the meaning would have been clear even more quickly. The title would then be "Development Specification Program for Reliability."

The underlying philosophy of that article is expressed by the author in the following excerpt: (italics added)

> "The attainment of reliability in our electronics equipment cannot be had by *pronouncing* the *magic word* or by simply stipulating in a *contract clause* or separate specification that we *require maximum reliability*. On the contrary, the attainment of reliability is a matter of establishing *realistic*, practical design requirements reflecting *available* parts and materials, circuit techniques, mechanical and thermal design techniques. All of these shall be in *consonance* with manufacturing techniques."

That article is essentially an outline history of the Navy's reliability development to date, and a statement of future plans.

The general tendency to use the two meanings of *specification* interchangeably and both of them with *standards* is probably due to infection by the specification that has the wrong meaning for any of our purposes, except as properly used in development programs. As a list of particulars, that branch of specification knows no bounds. It can go completely hay-wire in itemizing all kinds of hopes and wishes without having the least obligation to deliver any of them.

The confusion between *standards* and *specifications* is, however, far more serious in its consequences, and has arisen for an entirely different reason. The difficulty began with a well-meaning attempt to help the Services get out their electronics specifications in a shorter time. That is a commendable purpose, no doubt about it—provided it can be done without sacrificing principles and values. But making haste in this case means taking short-cuts through the procedural safeguards that are scrupulously observed in arriving at our standards. Standard specifications obtained by short-cut methods are likely to contain objectionable material that would automatically be discarded by strict observance of the safeguards provided by EIA and other standardization procedures.

These safeguards have been one of the main factors in achieving the unquestionable prestige that EIA and other standards have attained both at home and abroad. The value of having that prestige on our side was effectively demonstrated at the International Electrotechnical Commission meeting held in Stockholm in July 1958. At that meeting, international standards in the electronics field were adopted that are essentially our standards. The consequence of that action is this: The United States electronics industry is now in a much better position than heretofore for meeting foreign competition on merit. It will no longer have to make costly changes in designs and production techniques in order to match the many unique and diversified foreign imports. Our export position is also strengthened for the same reason. In fact, the adoption of these international standards advances the interests of all our companies that have any international business whether sales, licensees, affiliates, or manufacturing facilities.

It is futile to assume that specifications can have the same stature when their chief aim is to gain time by shortening those procedural safeguards that have put our American EIA and IRE standards at the top internationally, and at a time when foreign competition was not only competition but was also another kind of headache; it was playing havoc with our design groups, manufacturing plants, and inventories.

It seems advisable, then, that we learn to respect the meanings of words for their directives and consequences. The two meanings of specifications in daily use will no doubt be scrambled together in spite of all we can do, but there is no good excuse for mixing specifications with standards. Their meanings have nothing in common. The real problem in this case, I fear, is that of good intentions. In that connection, I want to introduce another word for your consideration which also has two meanings. It is the word "expediency." The first meaning of that word is: "apt and suitable to the end in view." But the second and most commonly used meaning is this: "cultivation of, or adherence to, expedient means and methods; especially, subordination of principle for the sake of facilitating an end or purpose." Note: *subordination of principle for the sake of facilitating an end or purpose.*

Let us, then, not be seduced by expediency.

PLAN NOW to Attend the Tenth National Conference on Standards, Detroit, October 20-22. *More details in announcement on page* 174.

NEW BOOKS

ASTM STANDARDS ON PETROLEUM PRODUCTS AND LUBRICANTS. *1958. 1210 pp. American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. $8.25.* A compilation of the latest and revised standards pertaining to test methods and specifications for petroleum products and lubricants, including information on 14 proposed test methods. About one-half of the approximately 200 standards contained in this issue were approved as American Standards.

ASTM STANDARDS ON PLASTICS. *1958. 1108 pp. American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. $8.00.* Forty-three of the 191 standards are new in this edition. These new standards give specifications for nonrigid vinyl chloride plastic sheeting; glass fabric reinforced epoxy resin laminates; and polymethylstyrene molding and extrusion material. The new material also includes a group of standards on plastic pipe with specifications covering dimensions of SWP and IPS sizes for cellulose acetate butyrate and acrylonitrile-butadiene-styrene pipe, as well as methods for short- and long-term hydrostatic pressure tests of plastic pipe. New abbreviations of terms relating to plastics are presented to facilitate a standardized short-hand notation for some of the more generally used complicated chemical names. Thirteen of the standards have been approved as American Standards under the procedures of the American Standards Association.

MAXIMUM PERMISSIBLE AMOUNTS OF RADIOISOTOPES IN THE HUMAN BODY AND MAXIMUM PERMISSIBLE CONCENTRATIONS IN AIR AND WATER. *NBS Handbook* 69. 1959. *Second edition. Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C.* Prepared by the National Committee on Radiation Protection and Measurements (NCRP) in cooperation with the International Commission on Radiological Protection (ICRP), this handbook presents the recently completed revision of the committee's 1953 recommendations. The present report gives the maximum permissible amounts of radioisotopes in the body and maximum concentrations in air and water for some 240 radioisotopes. New data are based on knowledge not available at the time the previous edition was issued. The study has included the evaluation of nearly 2000 separate research reports bearing on the permissible dose problem. The new values reflect, where applicable, the lowering of the basic maximum permissible dose recommended by the NCRP in 1957 and 1958. In addition, instead of basing their calculations on a continuous occupational exposure, 24 hours per day, for 70 years, it was decided that it would be more realistic to consider 50 years as the period of continuous occupational exposure. As a result of all of these considerations, some values have been increased, some decreased, and others remain essentially unchanged.

STANDARD X-RAY DIFFRACTION POWDER PATTERNS. *By Howard E. Swanson, Nancy T. Gilfrich, Marlene I. Cook, Roger P. Stinchfield, and Paul C. Parks. NBS Circular* 539, *Volume* 8. 76 *pp. Superintendent of Documents, U.S. Government Printing Office, Washington* 25, *D. C.* $0.45. This publication presents 61 patterns, of which 33 are replacements for 39 patterns already represented in the National Bureau of Standards' X-ray Powder Data File, and 28 are for compounds not previously represented. These patterns were made with a Geiger counter x-ray diffractometer, using samples of high purity. With the exception of five organic compounds, the material covered is inorganic.

Each section of the circular contains structural data, lattice constants, calculated densities, and a table comparing indexed "d" values and intensities presented by NBS with existing powder patterns available in the literature.

CROSS-INDEX OF CHEMICALLY EQUIVALENT SPECIFICATIONS AND IDENTIFICATION CODE (FERROUS AND NONFERROUS ALLOYS). *1958. 366 pp. MIL-Handbook-H 1B. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. $1.75.* This revised issue provides a single five-digit code number for ferrous and nonferrous alloys of similar composition covered by a variety of specifications. It facilitates compilation of raw material requirements by means of a system of code numbers which may be used for Bill of Materials reporting, and it constitutes a reference by which the material compositions of specifications may be compared. The publication also presents a mechanism for military reporting and planning agencies to consolidate and evaluate material requirements by machine methods.

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This is the twenty-first installment in the current series of rulings as to whether unusual industrial injury cases are to be counted as "work injuries" under the provisions of American Standard Method of Recording and Measuring Work-Injury Experience, Z16.1-1954. The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply. These cases are issued periodically by the Z16 Committee on Interpretations.

Case numbers in the current series start with 400. Cases 400-500 have been reprinted with an index prepared by the National Safety Council. To make it easy to locate all cases applying to any section of the standard, the index is arranged numerically both by paragraph number of the standard and by case number. Each index reference includes a brief description of the case. Reprints are 75 cents per copy, available from ASA.

Sectional Committee Z16 is sponsored by the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

Are These Cases Work Injuries?

CASE 631 (5.12)

On a clear day, a highway maintenance foreman was in the state truck in the outside lane next to the eight-foot shoulder on which the maintenance crew was spreading an oil seal. The truck had a large sign directing traffic to the left, and there were flashing red lights and red flags, the purpose of which was to direct traffic into the inside lane. Beyond this truck were another truck, which was dumping emulsion into a spreader box, and a third vehicle which was following the spreader box, unloading warning devices on the fresh oil.

A privately owned truck was in the right-hand lane, had 6300 feet of clear sight distance, but was too late in pulling over to the left-hand lane. The driver crashed into the rear of the state truck, which in turn knocked into the rear of another state truck, and finally into the ditch on the right side of the road. The highway maintenance foreman was fatally injured.

Since all precautionary measures had been taken, the question in this case was whether the case might be excluded from the rates on the basis of paragraph 5.12 concerning external events over which employers have no control.

Decision: The committee decided that this fatality should be included in the work injury rates. The members believed that it was not the intent of paragraph 5.12 to exclude traffic accidents, but rather to exclude events as those used as examples in that paragraph. Attention was called to the Introduction of the standard which states that the fact that the employee or employer did not have control over the cause of a work injury shall not be a criterion for excluding the work injury from application of the provisions of the standard.

CASE 632 (1.6)

On a clear day, a highway maintenance crew was patching the road with emulsion and screenings. The driver of a private car did not see the many "Men at Work" signs, and would not stop for the flagman who was directing traffic around the working crew, forcing the flagman to jump out of the way of the oncoming car. The car hit the roller, pushing it back and knocking the roller operator onto the front of the automobile and back onto the roller. The roller was in forward gear at the time of impact, and was eventually stopped by the injured operator, who lost time from work because of his injuries.

Decision: The committee decided that this should be considered a work injury and included in the work injury rates. The members believed that working on a traveled highway involved the hazard of being struck by passing vehicles, and, since this hazard was inherent in the job, any accident arising from the hazard would have to be accepted as arising out of the employment.

CASE 633 (5. 2)

An employee had been driving an electric fork-lift truck for about one hour before he felt a pain in his back, in the lumbosacral region, and reported to the medical clinic. The particular truck he had been driving had a smaller than usual battery which is the back rest against which the truck drivers lean, the normal battery offering support of the back to a height of 38 inches from the driver's feet, the battery in question supporting to only 27 inches. An hour and forty-five minutes later the employee was sent to the plant physician who indicated "myodynia," and said the employee could return to work. He drove a fork truck with a regular battery for about three hours, at which time he complained that he was unable to work due to pain in his back. He was excused as sick in order to go home.

For the next two days the employee did not work, but on the second day he reported to the medical clinic for reexamination by the plant physician, who reported "no deformity or limitation of motion" and said the man could return to work except on a truck, and recommended light duty for a few days. The next scheduled shift for this employee was four days later, at which time the employee reported for work.

Decision: The committee decided that the lost time should be included in the work injury rates on the basis that the requirements of paragraph 5.2 (a) had been met, and, in the absence of a specific statement from the doctor denying causal relationship, the members believed paragraph 5.2 (b) had also been met.

CASE 634 [Â1.6 (h)]

A line crew was on the road at noon, and stopped at the pole yard to eat lunch. The truck driver helper had a jar of tea as part of his lunch, and wanting some ice for his tea because of the warm weather, he climbed up into the back of the line truck to get it out of the water cooler. After getting the ice, he started to get out of the truck. His foot slipped and he fell out of the back end of the truck, a distance of about four feet, landing on both hands and his knee. He worked the rest of the day, but in the evening he called his foreman and stated that he was having considerable pain in his shoulder blades and neck. He then telephoned the doctor who advised him to go to the hospital for x-rays that night. The x-rays showed he had cracked a vertebra in his neck. He was admitted to the hospital, and traction was applied to his head. He was released from the hospital about three weeks later, was instructed to use

traction at home, and was given a neck brace to use when he was up and about.
Decision: The committee concluded that this injury should be included in the work injury rates on the basis that although it happened during the lunch period, it arose out of a peculiar circumstance of employment in that obtaining ice from the cooler in the back end of the truck was not a normal circumstance of normal employees' lunch hours, and it was peculiar particularly to the environment of this employee.

CASE 635 (1.1)

Borderline case. Not to be used as a precedent.

CASE 636 (5.3)

A serviceman lifted or pushed a 500-pound refrigerator to set it back into a space between a cupboard and a sink, and felt a crunch at the inner end of the right clavicle. There was immediate swelling which he showed to his supervisor, and for a couple of days he could scarcely shift gears on the company auto. This was painful any time he did anything, and he had to sleep with his hand hanging out of bed.

About three weeks later the employee was moving a large gas refrigerator back into place after having worked on the water valve. He felt severe pain in his shoulder after having pushed it back in place, and this injury caused him to seek medical aid. He was treated for two months, at the end of which time the swelling continuing to subside, he returned to work. A day later he was examined again by the doctor who believed that the employee had a rheumatoid arthritis which was not the result of the injury, but which might have given him the pain. The employee was advised to continue on light work since this should not aggravate the condition. A month later the man was discharged by the doctor who stated that this condition arose solely out of a pre-existing physical deficiency, and without this deficiency he would not have experienced the symptoms about his right sterno-clavicular joint which had given him so much pain.
Decision: The committee concluded that this should be included in the work injury rates on the basis that the employee's work aggravated his pre-existing non-disabling arthritic condition and made it disabling.

CASE 637

Borderline case—not to be used as a precedent.

CASE 638

Borderline case—not to be used as a precedent.

CASE 639 (1.6)

In the course of attending a company educational course, a Grade 2 meterman attempted to close a casement window, and in so doing he lost his grip on the window which swung down, fracturing his left index finger.

The employee was taking the course which was one of the requirements in order to prepare himself to become a Grade 1 meterman when a vacancy arose. Such courses could be taken elsewhere, but were made available on company property after working hours. The company furnished and paid the instructor; the employee paid for the privilege of taking the course, and was not paid for the time after working hours while he took the course.
Decision: The committee concluded that this injury should not be included in the work injury rates. The members did not believe this should be considered an industrial injury since the employee was not in the course of his employment when he was injured, but was attending a study course on his own time for the purpose of improving his own status within the company, and was paying for the privilege of taking this course.

CASE 640 [A1.6 (1)]

A telephone operator, while on her rest break, visited the company lunch room, and while pouring boiling water from a coffee pot into an urn, spilled the boiling water over both her legs. She suffered first degree burns of the left leg, and first and second degree burns of her right leg. She was held at the hospital for two days and was absent from work a total of 31 days.
Decision: The committee decided that this injury should be considered an industrial injury and should be included in the work injury rates. The members explained the difference between the inclusion of rest-break injuries and the exclusion of lunch-period injuries in that the former occur at a time which has a definite relationship to the employment by helping the employee to work more efficiently, and the time is usually included within the hours of employment; whereas, the latter occur at a time which is not associated directly with the employment, and the time is not included as working hours.

CASE 641 (5.1)

An employee stated that while handling a drum of chemicals he felt a "burning sensation" in the right groin. He did not report the incident to anyone at that time. Three days later he was lifting a 50-pound jar when he felt the same burning sensation in the right groin. He reported to the dispensary about two hours later where, after examination, it was determined a herniation existed.
Decision: The committee decided that this hernia should not be included in the work injury rates on the basis that the case did not meet the requirements of paragraph 5.1 (c) that the immediate pain was so acute the injured employee was forced to stop work long enough to draw the attention of his foreman or fellow employee, or the attention of a physician was secured within 12 hours.

CASE 642 [A1.6 (d)]

Two employees from the engineering department in one state were on assignment in another state, together with an employee of the research division located in the other state. The two out-of-town employees were assigned rooms at the local hotel. During the day in question they were working at the company plant, and sometime during the day the three men made arrangements to have dinner together that evening.

The two out-of-town employees returned to the hotel early in the evening, and later drove to an eating establishment where they had dinner with the third employee. During the course of dinner they discussed business matters.

After dinner the two employees were on their way back to the hotel at approximately 2 A.M. when the car in which they were riding struck a bridge abutment. One of the employees suffered fatal injuries, and the other employee who was driving the car suffered a disabling injury.
Decision: The committee concluded that if the primary purpose of the meeting was merely that of having dinner together and the business discussion was entirely incidental, then the injuries should be excluded from the record on the basis of provision 2 in the first paragraph of A1.6 (d). On the other hand, if the primary purpose of the meeting was that of discussing business and having dinner was merely an incidental event associated with the discussion for convenience, the injuries should be counted as arising out of and in the course of employment.

The members of the committee believed that the company was in a better position to know the facts and to determine the primary purpose of this dinner meeting than they were, and that the company should therefore make this decision.

CASE 643 (5.1)

While pushing a cart load of plywood (his regular work), an employee felt a pain in his left side. He reported to his foreman the same day and was taken home. The following day he reported to a doctor who diagnosed the case as splitting of prior right inguinal hernia suture scar. This employee had had a hernia about 10 years previous.
Decision: The committee decided that this case should be included in the work injury rates on the basis that there appeared to be no question that the disability arose out of and in the course of employment, and the employee had reported his condition promptly to his foreman and the doctor.

STANDARDS FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering copies of standards, please refer to the number following the title.

NOTE: A further shipment of English translations of German standards has been received by the American Standards Association, bringing the total number of translated German standards now available to 434. A list of all these standards is available upon request. This list includes prices and information for purchasing copies.

332.1 BANKING

France (AFNOR)

Specimen of deposit note PN K 11-36
Models of bank's record forms for the immobilization of stocks in view of a general stockholder meeting NF K 12-75-77

614.8 ACCIDENTS: PREVENTION, PROTECTION, SAFETY

Denmark (DS)

Safety symbols and signs DS 736
Warning signs for gas cylinders DS 738.1

United Kingdom (BSI)

Flameproof industrial clothing (materials and design) BS 1547:1959
Safety footwear: Rubber safety boots BS 1870:Part 2:1959

Uruguay

Conventional danger signs UNIT 131-58
Signs for prevention of accidents UNIT 132-58

614.84 FIRE BRIGADE

Austria (ONA)

Fire safety equipment, terminology ONORM F 1001

France (AFNOR)

3 stds for heavy, medium and light tank trucks for forest fires PN S 61-517/9
5 stds for automatic pumps, different sizes PN S 61-512/6
Hand pump. Sprayers PN S 61-830

Germany (DNA)

Tool box for cutting off power lines DIN 14882

Israel (SII)

Portable soda-acid extinguishers: charge and filling solutions S.I. 52*

United Kingdom (BSI)

Fireman's axe with rubber insulated handle BS 3054:1959

621.3 ELECTRICAL ENGINEERING

Australia (SAA)

Electric cable soldering sockets . C56-1958
Approval and test specification for plugs and plug sockets C.112-1958 Ap

Canada (CSA)

Construction and test of domestic cooking and liquid-heating appliances C22.2 No. 64-1959
Construction and test of service equipment C22.2 No. 86-1959
Construction and test of fans and ventilators C22.2 No. 113-1959

Denmark (DS)

Transformers for 6, 10 and 15 kv distribution nets DS 788
Thermometer pockets for oil transformers DS 789
Tapping device for oil transformers (100-800 kva) DS 790
Rotating electrical machinery DS 5002

France (AFNOR)

Electrotechnical vocabulary. Group 70. Electrobiology NF C 01-070
Rules for the installation and use of x-ray equipments NF C 15-160
Solid insulating materials: mica products NF C 26-120
Domestic electric irons NF C 73-109

Germany (DNA)

Storage battery terminal clamp and cable clip DIN 40746
Small transformer coil cores types M, EJ, L and UJ. Main dimensions DIN 41303
Fuse holder, type G, 2 A 500 v up to 3 kv DIN 41681
Sleeve sockets with G-ring, type E16, 250 v DIN 41688

India (ISI)

Bayonet lampholders IS:1258

Israel (SII)

Radio receivers: safety S.I. 250
Domestic electric water heaters S.I. 251*

Italy (UNI)

Reel for overhead trolley contact wire UNI 4011

Japan (JISC)

Resistance wire, enameled and silk covered JIS C 2529
Bimetallic plates for electric use JIS C 2530
Cup insulators JIS C 3848
Power type coated wire wound resistors JIS C 6401
Designation system of connectors for radio frequency cables JIS C 6503
N-type connector for radio frequency coaxial cables JIS C 6504
BNC-type connector for radio frequency coaxial cables JIS C 6505
M-type connector for radio frequency coaxial cables JIS C 6506
Fluorescent discharge lamps for general service JIS C 7601
Glow starters for fluorescent lamps JIS C 7603
Mercury-arc lamps JIS C 7604
Mercury-arc lamp ballast JIS C 8110
Porcelain enameled reflectors JIS C 8111
Electric vacuum cleaners JIS C 9108
3 stds for electric hot plates, heaters, flat irons JIS C 9201/3
3 stds for electric roasters, toasters, percolaters JIS C 9206/8
Electric soldering iron JIS C 9211
Electric refrigerators JIS C 9607

Netherlands (HCNN)

Enameled or varnished insulated wire 0.5 and 0.6 mm used in telecommunication NEN 3082

Union of South Africa (SABS)

List of electrotechnical terms: Static convertors SABS 042-11-1958
List of electrotechnical terms: Transductors SABS 042-12-1958
List of electrotechnical terms: Protective relays SABS 042-16-1958
Std spec for polyvinyl chloride (PVC) insulated electric cables and flexible cords SABS 150-1957
Standard spec for electric stoves and hotplates SABS 153-1958

United Kingdom (BSI)

Intrinsically-safe remote-control circuits associated with restrained plugs and sockets for use in coal mines BS 3101:1959
Fixed electrolytic capacitors (aluminum electrodes) for use in telecommunication and allied electronic equipment: General requirements and tests BS 2134:Part 1:1959
Basic dimensions for printed wiring BS 3081:1959
Enamelled and cotton-covered copper conductors (oleo-resinous enamel) Round wire: metric units BS 1815:Part 3:1959
Enamelled and silk-covered or rayon-covered copper conductors (oleo-resinous enamel) Round wire: metric units BS 2479:Part 3:1959
Silk-covered and rayon-covered copper conductors: Round wire: metric units BS 2480:Part 3:1959
Cable sealing boxes for oil-immersed transformers: Boxes for 22 kv and 33 kv solid-type cables BS 2562:Part 2:1959
Isolators (including selectors) for alternating-current systems BS 3078:1959

621.74 FOUNDRY WORK

Germany (DNA)

Dowels for wooden foundry patterns DIN 1525

Hungary (MSZH)

15 stds for trowels and different similar handtools for foundry work MSZ 1464/78-57

Spain (IRATRA)

Cupola, terminology UNE 36651

621.753 GAGING AND GAGE MAKING

France (AFNOR)

Tolerances on pipe, nut etc, flats NF E 20-021

Germany (DNA)

Rim measuring tapes DIN 7839

621.798 PACKING AND DISPATCH. PACKAGING

France (AFNOR)

Marine packing. Marking of boxes PN H 00-001
Cardboard boxes for apples and pears PN H 13-001
Cardboard boxes for endive PN H 13-002

News Briefs . . .

Paul T. Allsman

• PAUL T. ALLSMAN, chief mining engineer, U. S. Bureau of Mines, has taken office as the newly elected chairman of ASA's Mining Standards Board. The Board supervises work on standards under ASA procedures in the mining field.

Mr Allsman joined the staff of the Bureau of Mines in 1936 after having worked for the United Verde Copper Company, now part of the Phelps Dodge Corporation. He is now staff adviser to all units of the Bureau in the various fields of mining research and related activities.

During his experience with the Bureau, Mr Allsman has supervised Federal mining exploration projects, including the successful exploration of chromite deposits in Montana, the exploration projects for tungsten in Nevada, and for manganese in Nevada and Utah.

While serving as chief of the Mining Division in the Bureau's Rocky Mountain Region, following reorganization of the Bureau in 1950, one of Mr Allsman's responsibilities was driving the Leadville Drainage Tunnel in Colorado.

Recently he has served as regional director of the North-Central Region of the Bureau and of the former Southern Region. During the past three years he has been engaged in developing a comprehensive mining research program for the Bureau.

Vice-chairman of the Mining Standards Board is Joshua Smith, director of safety, Eastern Gas and Fuel Associates, Coal Division, Mt Hope, West Virginia. A. C. Hutton, American Standards Association, Washington office, is secretary.

At its meeting late in 1958, the Mining Standards Board heard reports from sectional committees under its jurisdiction indicating that revisions are under consideration affecting a number of American Standards. These include: Safety Code for Installing and Using Electrical Equipment In and About Coal Mines, M2; Wire Rope for Mines, M11; Classification of Coals, M20; and Safety Rules for Installing and Using Electrical Equipment in Metal Mines, M24. Reorganization is under way affecting the sectional committees on Screen Testing of Ores, M5; Rock-Dusting Coal Mines to Prevent Coal Dust Explosions, M13; and on Recommended Safe Practices for Underground Mine Transportation, M31.

• SHOULD there be an international standard for the methods of making static calculations of building construction? The International Organization for Standardization is at present canvassing its member countries, including the United States, to find out whether such a standards project should be initiated. The building materials covered by these methods include masonry component units, various types of concrete, steel, light metals, and timber. ISO has requested an answer by July 31, 1959. American groups interested are invited to write the American Standards Association.

• FROM TIME TO TIME newspaper reports show that the continuing battle to prevent loss of life and property as a result of dust explosions has not yet been won. Among the effective weapons that are reducing the dust explosion toll are the American Standard safety codes under ASA project Z12, sponsored by the National Fire Protection Association. The NFPA committee on dust explosion hazards, with Hylton R. Brown, senior engineer of the Bureau of Mines, U. S. Department of the Interior, as chairman, constitutes Committee Z12 under American Standards Association procedures.

Recently, four of the American Standard safety codes developed by this committee were brought up to date.

Most important is the American Standard Safety Code for the Prevention of Dust Explosions in Coal Preparation Plants, Z12.7-1959 (NFPA No. 653). In one sense this is a new code which was tentatively adopted in 1957 but was given final approval by the committee last year. Actually, it is a combination of portions of the earlier standard Z12.7-1953 which was entitled "Coal Pneumatic Cleaning Plants," with new recommendations emphasizing the additional protection that is necessary where certain types of coal-drying equipment are used.

The other new editions are as follows:

Z12.1-1959 (NFPA No. 60), *Safety Code for the Installation and Operation of Pulverized Fuel Systems*. This is a revision of American Standard Z12.1-1957, second edition. A complete revision of Article No. 42 entitled "Torches" is the most important change.

Z12.2-1959 (NFPA No. 61A) *Safety Code for the Prevention of Dust Explosions in Starch Factories*. This standard was first approved by the American Standards Association (then the American Engineering Standards Committee) in 1926, and succeeding editions have been approved as American Standard. The only change in the current edition is insertion of a note following Paragraph 422 dealing with the use of compressed air to clean motors.

Z12.6-1959 (NFPA No. 62) *Safety Code for Pulverizing Systems for Sugar and Cocoa*. This is a revision of American Standard Z12.6-1953. One paragraph was revised in this edition and the entire section on venting was deleted pending a complete revision of the code. This revision is being made this year.

Hylton R. Brown, chairman, reports that the committee plans to present a complete revision of the Safety Code for the Prevention of Sulfur Dust Explosions and Fires, Z12.12-1950 (NFPA 655) during this year, as well as minor changes in several other codes.

• NEW MEMBERS of ASA's Standards Council include John J. Halvorsen, manager, Plastic Pipe Sales, Orangeburg Manufacturing Company; Gerald F. Prange, director, Technical Services Division, National Lumber Manufacturers Association, and Julian Zuke, Jr, secretary of the National Aircraft Standards Committee (technical service), Aerospace Industries Association. Mr Zuke is secretary of both the National Aircraft Standards Committee (technical service) and of the Engineering Contracts Requirements Committee (technical service).

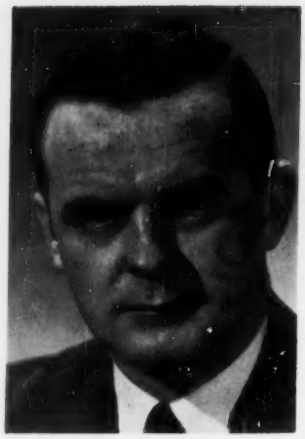
Mr Halvorsen, representative of The Society of the Plastics Industry, has had a long experience with both metal and plastic pipe fittings and valves. He worked for the Crane Company, Chicago, for some 20 years, followed by several years as director of technical services for the Mills Plastic Division of Continental Can Company in Chicago. Now he is sales manager of the Orangeburg Manufacturing Company's plastic pipe division. Mr Halvorsen has served a three-year term of office as vice-chairman of the Thermo-Plastic Division of The Society of the Plastics Industry and has been active on the standardization committees of that division plus various committees of the American Standards Association. At the present time, he is chairman of the Sectional Committee on Plastic Pipe Standards, B72.

Mr Prange represents the National Lumber Manufacturers Association on the Standards Council. With both BS and MS degrees in wood technology, Mr Prange started his professional career as research technologist with Johns-Manville Corporation in 1950. In 1951 he joined the Timber Engineering Company laboratory staff as wood technologist, and in 1953 joined the National Lumber Manufacturers Association as assistant to the vice-president, Technical Services Division. Mr Prange became assistant vice-president in 1956 and director of the Technical Services Division in 1958. He is a member of the Forest Products Research Society, American Society of Wood Engineering, American Society for Testing Materials, American Railway Engineering Association, and the Building Research Institute.

Gerald F. Prange

Mr Zuke is representing the Aerospace Industries Association on the Standards Council. Mr Zuke was graduated from the Maine Maritime Academy, Castine, Maine, with a BS degree in engineering. In 1952 he entered active duty as engineering officer in the U. S. Navy with the rank of Lieutenant. In 1954, as a civilian employee of the Navy, he was named project officer for the Navy Bureau of Ships' New Design Landing Ships and Craft. He transferred in 1956 to the Navy Bureau of Aeronautics and became associated with BuAer's Airborne Equipment Division, Mechanical Equipment Design Section. For the next two years, before joining the Aircraft Industries Association, he was closely associated with standardization activities of the Bureau of Aeronautics.

• THE ASSOCIATION of Casualty and Surety Companies, the National Association of Automotive Mutual Insurance Companies, and the National Association of Independent Insurers have now joined forces in the program for prevention of traffic accidents. The three organizations are sponsoring the Insurance Institute for Traffic Safety, which was formed recently to carry on the work. The Association of Casualty and Surety Companies, in announcing the change, points out that the combined efforts of the insurance organizations are expected to accomplish even better results than the individual organizations had accomplished in the past. "With the added weight of an industry program, the contribution of the insurance companies should be greatly intensified," it explains.



Julian Zuke, Jr

WILLIAM C. STEWART, one of the country's foremost fastener engineers, for many years secretary of Sectional Committee B18 on Bolts, Nuts, Screws, and Rivets, and for some time a member of ASA's Standards Council, died suddenly February 6. Mr Stewart had been technical adviser of the Industrial Fasteners Institute since 1937. He had been active in ABC unification discussions and in 1951 represented the United States at the ABC conferences on bolt and nut standardization in London, England. Mr Stewart was a member of many years on Sectional Committee B1, Screw Threads, and played a principal role in the development and adoption of the unified screw thread system in 1949. Mr Stewart was also active in the fastener standardization work being done by the American Society for Testing Materials, the Society of Automotive Engineers, and in the many departments and agencies of the Federal Government. He was largely responsible for advancing the technology of fasteners through research. For ten years he was chairman of the Institute's project committee responsible for the research work which proved the superiority of the high-strength bolt as a structural fastener. He also helped organize and served as editor of *Fasteners*, the technical magazine of the Industrial Fasteners Institute.

• THE NATIONAL STANDARDS Committee of the American Material Handling Society has prepared a manual for use by the Society's chapters in developing standards. Called the Standards Classification Manual, the booklet outlines the procedure through which development of a standard must go from the assignment of responsibility to a committee to submittal of the standard to the American Standards Association. It also outlines the type of material that should be included and explains in detail the purpose and the use to which material handling standards should be directed.

"The field of material handling is one of the fastest growing facets of American industry and we must have adequate standards to keep up with the pace," says F. P. Frontier, chairman of the National Standards Committee. "During the past few years, the National Standards Committee, in cooperation with every major industrial association concerned with and serving our field, has accomplished much in establishing the basic guides for standardization in material handling. . . . The next step will be the assignment of specific areas of standardization to each of the individual AMHS Chapters by the National Committee."

AMERICAN STANDARDS

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MECHANICAL

Reamers, B5.14-1959 [Revision of B5.14-1949 (R1955)] $2.50

Sponsors: American Society of Tool Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Mechanical Engineers

MISCELLANEOUS

Sieves for Testing Purposes (Wire Cloth Sieves, Round-Hole and Square-Hole Screens or Sieves), Specifications for, ASTM E 11-58T; ASA Z23.1-1959 (Revision of ASTM E 11-39; ASA Z23.1-1939) $0.30

Sponsors: American Society for Testing Materials; National Bureau of Standards

PHOTOGRAPHY

Thermometers for Photographic Processing, Specifications for, PH4.7-1958 (Revision of PH4.7-1956 and partial revision of Z38.8.9-1946) — *corrected copy* $0.35

Radiographic Film Processing Tanks, Internal Dimensions for, PH4.17-1958 (Revision of Z38.8.7-1946) $0.35

Photographic Grade Dry Mounting Tissue, Specifications for, PH4.21-1958 $0.35

Sponsor: Photographic Standards Board

PIPE AND FITTINGS

Gas Transmission and Distribution Piping Systems (Section 8 of the Code for Pressure Piping) B31.8-1958 (Revision of B31.1.8-1955) $2.50

This revision of Section 8 of the Code for Pressure Piping consists primarily in rewording of various paragraphs in order to clarify the intent of the Code. One specific change is as follows: Whereas formerly, when a standard was incorporated into the Code by reference the use of the latest published revision was intended, according to this revision of Section 8, only the revision listed in Appendixes A and B is to be used now.

Sponsor: American Society of Mechanical Engineers

TEXTILES

Cotton Yarns, Methods of Testing and Tolerances for, ASTM D 180-57T; ASA L14.13-1959 (Revision of ASTM D 180-54T; ASA L14.13-1956) $0.30

Man-Made Staple Fibers, Methods of Testing, ASTM D 540-57T; ASA L14.33-1959 (Revision of ASTM D 540-44; ASA L14.33-1949) $0.30

Felt, Methods of Testing, ASTM D 461-57T; ASA L14.52-1959 (Revision of ASTM D 461-53; ASA L14.52-1955) $0.30

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

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AUTOMOTIVE

In Standards Board

Specific Gravity of Concentrated Engine Antifreezes by the Hydrometer, Method of Test for, ASTM D 1122-58; ASA D14.3- (Revision of ASTM D 1122-53; ASA D14.3-1955)

Sponsor: American Society for Testing Materials

BUILDING AND CONSTRUCTION

American Standards Approved

Gypsum Plasters, Specifications for, ASTM C 28-58; ASA A49.3-1959 (Revision of ASTM C 28-57; ASA A49.3-1958)

Sponsor: American Society for Testing Materials

Billet-Steel Bars for Concrete Reinforcement, Specifications for, ASTM A 15-58T; ASA A50.1-1959 (Revision of ASTM A 15-57T; ASA A50.1-1958)

Cold-Drawn Steel Wire for Concrete Reinforcement, Specifications for, ASTM A 82-58; ASA A50.3-1959 (Revision of ASTM A 82-34; ASA A50.3-1936)

Sponsor: American Society for Testing Materials

Gypsum Wallboard, Specifications for, ASTM C 36-58; ASA A69.1-1959 (Revision of ASTM C 36-55; ASA A69.1-1956)

Sponsor: American Society for Testing Materials

Ignition Loss and Active Calcium Oxide in Magnesium Oxide for Use in Magnesium Oxychloride Cements, Methods of Test for, ASTM C 247-57; ASA A88.16-1959 (Revision of ASTM C 247-52; ASA A88.16-1953)

Sponsors: American Society for Testing Materials; National Bureau of Standards

Building Brick (Solid Masonry Units Made from Clay or Shale), Specification for, ASTM C62-58; ASA A98.1-1959 (Revision of ASTM C 62-57; ASA A98.1-1958)

Sponsor: American Society for Testing Materials

Sewer Brick (Made from Clay or Shale), Specification for, ASTM C 32-58; ASA A100.1-1959 (Revision of ASTM C 32-50; ASA A100.1-1954)

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In Standards Board

Fireclay and High-Alumina Refractory Brick, Classification of, ASTM C 27-58T; ASA A111.5- (Revision of ASTM C 27-41; ASA A111.5-1956)

Basic Procedure in Panel Spalling Test for Refractory Brick, Method for, ASTM C 38-58; ASA A111.6- (Revision of ASTM C 38-52; ASA A111.6-1955)

Sponsor: American Society for Testing Materials

Areas in Hospitals and Related Facilities, Method of Determining, Z65.4-

Sponsors: National Association of Building Owners and Managers; Office of Education, Dept of Health, Education and Welfare

CHEMICAL

In Standards Board

Turpentine, Methods of Sampling and Testing, ASTM D 233-58; ASA K33.1- (Revision of ASTM D 233-36; ASA K33-1937)

Sponsor: American Society for Testing Materials

CONSUMER GOODS

In Standards Board

Alkaline Detergents, Methods of Sampling and Chemical Analysis of, ASTM D 501-58; ASA K60.21- (Revision of ASTM D 501-57; ASA K60.21-1958)

Sponsor: American Society for Testing Materials

DRAWINGS, SYMBOLS AND ABBREVIATIONS

American Standard Approved

Illustrations for Publication and Projection, Y15.1-1959 [Revision of Z15.1-1932 (R1947) and Z15.3-1943 (R1947)]

Sponsor: American Society of Mechanical Engineers

In Standards Board

Letter Symbols for Feedback Control Systems, Y10.13-

Sponsor: American Society of Mechanical Engineers

ELECTRIC AND ELECTRONIC

American Standards Approved

Electrical Indicating Instruments, C39.1-1959 (Revision of C39.1-1955)

Sponsor: Electrical Standards Board

Relays, Definitions and Terminology for, C83.16-1959

Sponsor: Electronic Industries Association

In Board of Review

Soft Rectangular and Square Bare Copper Wire for Electrical Conductors, Specifications for, ASTM B 48-58; ASA C7.9- (Revision of ASTM B 48-57; ASA C7.9-1958)

Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Members for Electrical Conductors, Specifications for, ASTM B 172-58; ASA C7.12- (Revision of ASTM B 172-55; ASA C7.12-1953)

Rope-Lay-Stranded Copper Conductors Having Concentric-Lay-Stranded Members for Electrical Conductors, Specifications for, ASTM B 173-58; ASA C7.13- (Revision of ASTM B 173-55; ASA C7.13-1953)

Bunch-Stranded Copper Conductors for Electrical Conductors, Specifications for, ASTM B 174-58; ASA C7.14- (Revision of ASTM B 174-53T; ASA C7.14-1953)

Concentric-Lay-Stranded Aluminum Conductors, Hard-Drawn Three-Quarters Hard-Drawn and Half-Hard-Drawn, Specifications for, ASTM B 231-58; ASA C7.21- (Revision of ASTM B 231-57; ASA C7.21-1958)

Concentric-Lay-Stranded Aluminum Conductors, Steel-Reinforced (ACSR), Tentative Specifications for, ASTM B 232-58; ASA C7.22- (Revision of ASTM B 232-57T; ASA C7.22-1958)

Resistivity of Electrical Conductor Materials, Method of Test for, ASTM B 193-58; ASA C7.24- (Revision of ASTM B 193-57; ASA C7.24-1958)

Copper Bus Bar, Rod and Shapes, Specifications for, ASTM B 187-58; ASA C7.25- (Revision of ASTM B 187-55; ASA C7.25-1957)

Seamless Copper Bus Pipe and Tube, Specifications for, ASTM B 188-58; ASA C7.26- (Revision of ASTM B 188-56; ASA C7.26-1957)

Standard Weight Zinc-Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR), Specifications for, ASTM B 245-58; ASA C7.28- (Revision of ASTM B 245-55; ASA C7.28-1956)

Zinc-Coated (Galvanized) Steel Core Wire (With Coatings Heavier Than Standard Weight) for Aluminum Conductors, Steel Reinforced (ACSR), Specifications for, ASTM B 261-58; ASA C7.34- (Revision of ASTM B 261-55; ASA C7.34-1956)

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In Standards Board

Interference Output of Television Receivers in the Range of 300 to 10,000 kc, Methods of Measurement, C16.25b- (Supplement to C16.25-1955)

Sponsor: Institute of Radio Engineers

Measurement of Direct Interelectrode Capacitance, C60.6- (Revision of C60.6-1952)

Sponsor: Joint Electron Device Engineering Council

Withdrawal Being Considered

Loudspeaker Testing, C16.4-1942

Sponsor: Institute of Radio Engineers

MECHANICAL

American Standards Approved

Carbon and Alloy-Steel Nuts for Bolts for High-Pressure and High-Temperature Service, Specifications for, ASTM A 194-58T; ASA G38.1-1959 (Revision of ASTM A 194-56T; ASA G38.1-1957)

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Free-Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines, Specifications for, ASTM B 16-58; ASA H8.1-1959 (Revision of ASTM B 16-52; ASA H8.1-1953)

Sponsor: American Society for Testing Materials

Standard Submitted

Taps—Cut and Ground Threads, B5.4-(Revision of B5.4-1948)

Sponsors: American Society of Mechanical Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Tool Engineers

METALLIC COATINGS

In Standards Board

Electrodeposited Coatings of Nickel and Chromium on Steel, Specifications for, ASTM A 166-58T; ASA G53.3-(Revision of ASTM A 166-55T; ASA G53.3-1956)

Electrodeposited Coatings of Nickel and Chromium on Copper and Copper-Base Alloys, Specifications for, ASTM B 141-58; ASA G53.4- (Revision of ASTM B 141-55; ASA G53.4-1956)

Electrodeposited Coatings of Nickel and Chromium on Zinc and Zinc-Base Alloys, Specifications for, ASTM B 142-58; ASA G53.5- (Revision of ASTM B 142-55; ASA G53.5-1956)

Sponsor: American Society for Testing Materials

METALLURGY

American Standards Approved

Structural Rivet Steel, Specifications for, ASTM A 141-58; ASA G21.1-1959 (Revision of ASTM A 141-55; ASA G21.1-1956)

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Steel for Bridges and Buildings, Specifications for, ASTM A 7-58T; ASA G24.1-1959 (Revision of ASTM A 7-56T; ASA G24.1-1957)

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Structural Steel for Locomotives and Cars, Specifications for, ASTM A 113-58; ASA G39.1-1959 (Revision of ASTM A 113-56; ASA G39.1-1957)

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Welded Steel Wire Fabric for Concrete Reinforcement, Specifications for, ASTM A 185-58T; ASA G45.1-1959 (Revision of ASTM A 185-56T; ASA G45.1-1957)

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Mild- to Medium-Strength Carbon-Steel Castings for General Application, Specifications for, ASTM A 27-58; ASA G50.1-1959 (Revision of ASTM A 27-57; ASA G50.1-1958)

Sponsor: American Society for Testing Materials

High-Strength Steel Castings for Structural Purposes, Specifications for, ASTM A 148-58; ASA G52.1-1959 (Revision of ASTM A 148-57; ASA G52.1-1958)

Sponsor: American Society for Testing Materials

Rolled-Copper-Alloy Bearing and Expansion Plates and Sheets for Bridges and Other Structural Uses, Specifications for, ASTM B 100-58; ASA H31.1-1959 (Revision of ASTM B 100-55; ASA H31.1-1956)

Sponsor: American Society for Testing Materials

Leaded Red Brass (Hardware Bronze) Rod, Bar, and Shapes, Specifications for, ASTM B 140-58; ASA H33.1-1959 (Revision of ASTM B 140-54; ASA H33.1-1954)

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In Standards Board

Zinc-Coated (Galvanized) Iron or Steel Sheets, Coils, and Cut Lengths, Specifications for, ASTM A 93-58T; ASA G8.2- (Revision of ASTM A 93-55T; ASA G8.2-1956)

Sponsor: American Society for Testing Materials

Slab Zinc (Spelter), Specifications for, ASTM B 6-58; ASA H24.1- (Revision of ASTM B 6-49; ASA H24.1-1949)

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Indexes, Basic Criteria for, Z39.4-1959

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In Standards Board

ASTM Thermometers, Specifications for, ASTM E 1-58; ASA Z71.1- (Revision of ASTM E 1-57; ASA Z71.1-1958)

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Reaffirmation Being Considered

Reference Data and Arrangement of Periodicals, Z39.1-1943

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PHOTOGRAPHY

American Standard Approved

Photographic Dry Plates (Inch and Centimeter Sizes), Dimensions for, PH1.23-1959 (Revision of PH1.23-1956)

Sponsor: Photographic Standards Board

In Standards Board

Dimensional Change Characteristics of Photographic Films and Papers, Methods for Determining, PH1.32-

Sponsor: Photographic Standards Board

Back Window Location for Roll Film Cameras, PH3.1- (Revision of PH3.1-1952)

Method for Determining Performance Characteristics of Front Shutters Used in Still Cameras, PH3.4- (Revision of PH3.4-1952)

Attachment Threads for Lens Accessories, Specifications for, PH3.12-(Revision of PH3.12-1953)

Exposure-Time Markings for Shutters Used in Still Cameras, PH3.32-(Revision of PH3.3-1952 and PH3.5-1952)

Aperture Markings for Still Camera Lens, PH3.33- (Revision of Z38.4.7-1950)

Projectors for Opaque Materials, Specifications for, PH3.34- (Revision of Z38.7.4-1944)

Sponsor: Photographic Standards Board

Withdrawal Being Considered

Flash Synchronizing Equipment, Bipost Type, Z38.4.26-1951

Flash Synchronizing Equipment, Bayonet Type, Z38.4.27-1951

Sponsor: Photographic Standards Board

PIPE AND FITTINGS

American Standards Approved

Petroleum Refinery Piping, B31.3-1959 (Partial revision of Section 3 of Code for Pressure Piping, B31.1-1955)

Oil Transportation Piping, B31.4-1959 (Partial revision of Section 4 of Code for Pressure Piping, B31.1-1955)

Sponsor: American Society of Mechanical Engineers

Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, Specifications for, ASTM A 105-58T; ASA G17.3-1959 (Revision of ASTM A 105-57T; ASA G17.3-1958)

Sponsor: American Society for Testing Materials

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Sponsor: American Society for Testing Materials

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Sponsor: American Society for Testing Materials

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Sponsor: American Society for Testing Materials

Seamless Copper Pipe, Standard Sizes, Specifications for, ASTM B 42-58; ASA H26.1-1959 (Revision of ASTM B 42-57; ASA H26.1-1958)

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In Standards Board

Nickel Seamless Pipe and Tube, Specification for, ASTM B 161-58T; ASA H34.1- (Revision of ASTM B 161-49T; ASA H34.1-1955)

Nickel-Copper Alloy Seamless Pipe and Tube, Specification for, ASTM B 165-58T; ASA H34.2- (Revision of ASTM B 165-49T; ASA H34.2-1955)

Nickel-Chromium-Iron Alloy Seamless Pipe and Tube, Specification for, ASTM B 167-58T; ASA H34.3-(Revision of ASTM B 167-49T; ASA H34.3-1955)

Sponsor: American Society for Testing Materials

RUBBER

In Standards Board

Sample Preparation for Physical Testing of Rubber Products, Methods of, ASTM D 15-58T; ASA J1.1- (Revision of ASTM D 15-57T; ASA J1.1-1958)

Sponsor: American Society for Testing Materials

SAFETY

Reaffirmation Being Considered

Recording and Measuring Work Injury Experience, Method of, Z16.1-1954

Sponsors: National Safety Council; Association of Casualty and Surety Companies, Accident Prevention Dept

WOOD AND WOOD PRESERVATIVES

American Standard Approved

Round Timber Piles, Specifications for, ASTM D 25-58; ASA O6.1-1959 (Revision of ASTM D 25-55; ASA O6.1-1958)

Sponsor: American Society for Testing Materials

News About American Standards Projects

SUMNER G. WHITTIER, administrator of veterans affairs, speaking at the general conference on building standards to aid the physically handicapped. Seated, left to right, A. W. Motley, director of the Bureau of Labor Standards, U. S. Department of Labor; K. Vernon Banta, deputy executive secretary, the President's Committee on Employment of the Physically Handicapped; Major General Melvin J. Maas, USMCR, (Ret), chairman of the President's Committee.

Building Standards to Aid the Physically Handicapped—

At a conference held in Washington, D. C., May 8, 45 representatives of national groups recommended that the American Standards Association initiate a standards project that would make buildings, and building facilities, used by the public, accessible to physically handicapped people.

People in wheel chairs, the blind, and even people who walk with canes or crutches, often find it impossible to get up stairs, through revolving doors, and up self-service elevators in public buildings. At the request of the President's Committee on Employment of the Physically Handicapped, the American Standards Association called the conference to see if the national groups concerned were agreed to try and help solve this problem of the handicapped.

Major General Melvin J. Maas, USMCR (Ret), chairman of the President's Committee, said in addressing the conference, "Needless barriers have unthinkingly grown up to bar both employment and legitimate business opportunities to many of our citizens, probably millions of them."

The meeting disclosed that specifications are needed for stairs, doors, elevators, rest room facilities, drinking fountains, and phone booths so that the handicapped will be able to use them. A draft guide aimed at overcoming some of these obstacles has been prepared under the auspices of the President's Committee with the help of the Veterans Administration. However, it is felt that a more widespread study of the problem is desirable, the objective being the formulation of national standards usable in all public building design.

The conference also recommended that the proposed national standards project be co-sponsored by the President's Committee and the National Society for Crippled Children and Adults, Inc.

While the standards which could evolve from this new work would, of course, be voluntary, designers, builders and owners of public buildings, would be urged to incorporate their provisions wherever possible.

After the meeting, General Maas expressed pleasure that the conference had agreed to the setting up of a project. "The new American Standards that can be expected to grow out of this project," he said, "will be much more than a set of mechanical specifications. For people in wheel chairs it will mean a new standard of living—a chance for a more active, a more useful, and a more rewarding life."

Radiation Hazards—

National standardization in the field of radio-frequency electromagnetic radiation hazards — such as may emanate from radar equipment — was unanimously recommended as a project for the American Standards Association at a general conference May 4. A proposal made by the Bureau of Ships, U. S. Department of the Navy, requested ASA to call the conference.

Thirty representatives of 21 national groups, including industry, labor, and government were present at the conference. The group also recommended that sponsorship of the project, in accordance with ASA procedures, be held by the American Institute of Electrical Engineers and the Bureau of Ships.

A committee to be organized under ASA procedure would develop the scope of work to be handled. This is expected to include terminology, instrumentation, and safety.

According to spokesmen at the conference, American Standards approved by ASA could take cognizance of medical research into the biological effects of radio-frequency electromagnetic radiation, and benefit military and industrial operation of equipment with such characteristics.

The new project would be under the supervision of the Electrical Standards Board of ASA with safety aspects to be coordinated with the Association's Safety Standards Board.

Polysulfide-Base Sealing Compounds for the Building Industry—

At a general conference held in Pittsburgh April 9, agreement was reached on a specification for polysulfide-base sealing compounds for the building industry. A drafting committee of the conference is at present engaged in putting the draft in final form for submittal by the ASA to letter ballot of all groups concerned. The project for the development of this specification under the ASA General Acceptance Method was requested by the Thiokol Chemical Corporation on behalf of a committee of producers of the compounds who had prepared a draft for conference consideration. The request was made in view of the urgent need for such a specification. The materials are being used in curtain wall construction and for other applications but no generally recognized specification has thus far been available. The urgency of the need for a standard also had been recognized by the Rubber and Plastic Adhesives and Sealants Manufacturers Council, whose technical committee also had prepared a draft. The specification recommended for approval as American Standard represents the combined thinking of the two committees along with the suggestions of the other groups at interest.

Transmission Chains and Sprocket Teeth, B29—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

The final draft of a standard for power transmission chains was completed at a recent meeting of Subcommittee B29.10 at the U. S. Army Engineer Research and Development Laboratories, Fort Belvoir, Virginia.

Members of the subcommittee are B. L. Pearce, Link-Belt Co, Indianapolis, chairman; P. J. Imse, Chain-Belt Co, Milwaukee; J. F. Smith, Union Chain & Manufacturing Co, Sandusky; A. W. Lemmon, Jeffrey Manufacturing Co, Columbus; W. E. Land, U. S. Army Engineer Research & Development Laboratories; E. L. Harris, Chain-Belt Co; and G. W. Haaff, Link-Belt.

Following approval by transmission chain manufacturers throughout the country and by Sectional Committee B29, the standard just completed by the subcommittee will be submitted to the sponsors and to the American Standard Association for approval as American Standard.

Work on the standard was initiated by ASA in 1956 at the request of the Corps of Engineers which had found during the Korean War that lack of power transmission chain standardization "deadlined" many cranes and shovels. Upon completion, the standardization is expected to result in an annual savings of $45,000 for the Corps of Engineers and a reduction in inventory of one-quarter million dollars.

The chains covered by the standard are designed to withstand limited overloads without serious damage. Their through-hardened pins give the chains high ultimate strengths, and relatively long pitch makes possible operation over cast tooth sprockets, the subcommittee explains.

Standard Practice for Lighting Factories, Mills, and Other Work Places, A11—

Sponsor: Illuminating Engineering Society

Research shows that higher levels of illumination are needed for many of industry's tasks, C. L. Crouch, technical director of the Illuminating Engineering Society, told the committee at its meeting April 13. Mr Crouch presented the results of six years of research done by Dr H. Richard Blackwell, who at the time of the research program was director of the Vision Research Laboratories at the University of Michigan. Dr Blackwell has recently transferred to Ohio State University where he is now director of the Institute for Research in Vision. Mr Crouch presented the results of the research program, indicating need for a revision of the 1952 edition of the American Standard for lighting factories, mills, and other work places. As a result, the committee set up a task group to study the 1952 edition page by page, using the research results as the basis for possible revisions.

H. O. Smith

Ball and Roller Bearings, B3—

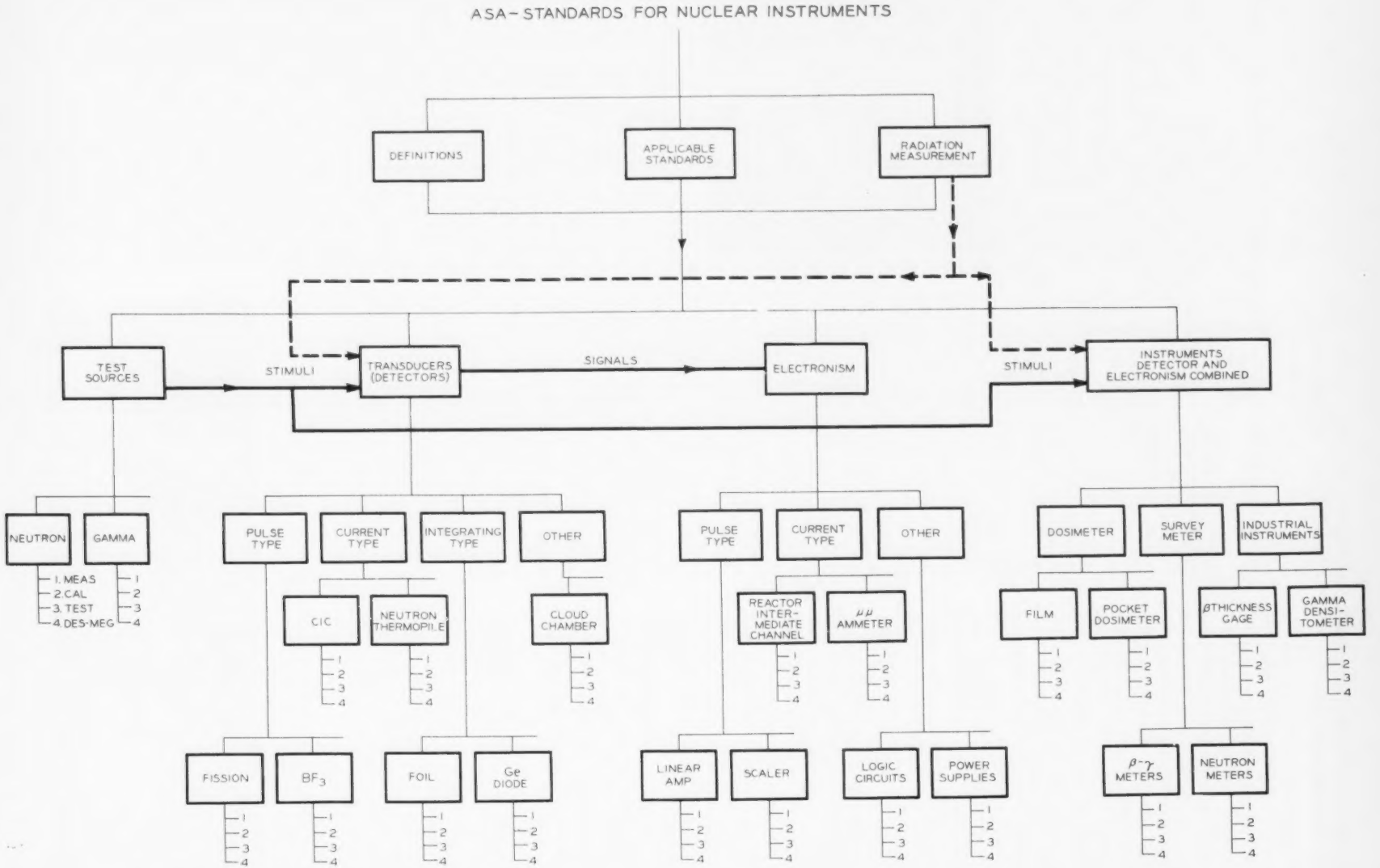
Sponsor: Anti-Friction Bearing Manufacturers Association, Inc

The work of this very active sectional committee will now be in the hands of the new secretary of the committee, H. O. Smith, secretary-manager of the committee's sponsoring association. Mr Smith has been with the association since 1933, starting as its first employee.

"At that time, the only bearing standards were boundary dimensions for three series of bearings," Mr Smith says. "During the years we have sponsored the Annular Bearing Engineers' Committee, the Roller Bearing Engineers' Committee, and the Ball Manufacturers Engineers' Committee. Today, we have a great many standards for both ball and roller bearings, and steel balls. Most of the industry standards are now American Standards, and through ASA Sectional Committee B3 these standards have been the framework for many international standards."

The committee has to its credit two newly approved and published American Standards, B3.10-1959, Requirements for Instrument Precision Ball Bearings, and B3.11-1959, Method of Evaluating Static

Subcommittee B29.10 in action (l to r) J. F. Smith; P. J. Imse, B. L. Pearce, W. E. Land, G. W. Haaff, A. W. Lemmon, E. L. Harris.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NEUTRON METERS

and Dynamic Load Ratings for Ball and Roller Bearings.

Proposals are now being prepared for final review by Committee B3 covering boundary dimensions, terminology, and steel balls. In addition, American Standards now on the books are being reviewed to bring them up to date with current practices. New material being considered includes tolerances for an ABEC 9 class of bearing, method of measuring very high precision bearings, and maximum corner dimensions.

Sectional Committee B3 arranged for U.S. representation at international meetings on anti-friction bearings held at Paris, Gothenburg (Sweden), Madrid, Vienna, and Naples. It plans also to arrange for delegates to represent the American Standards Association at the next ISO/TC 4 meeting in Berlin, October 1959.

Committee B3 is one of the more active sectional committees due to the splendid cooperation of the entire membership, Mr Smith points out.

The Anti-Friction Bearing Manufacturers Association is also sponsor of Sectional Committee B54, Identification System for Anti-Friction Bearings, and Mr Smith is secretary of Committee B54 as well as B3.

Nuclear Instrumentation, N3—
Sponsor: Institute of Radio Engineers

Representatives of 22 professional societies, associations, and government organizations, members of Committee N3, are now meeting quarterly to hasten the development of standards for nuclear instruments and controls. They urge all concerned to send the committee information on the need for standards.

"Once a need is known, an effort will be made to have a standard developed through appropriate channels," W. H. Hamilton, chairman of the committee, explains. "Since the nuclear instrument field is new, early standardization of concepts can achieve a real economy for the industry. For this reason, N3 is anxious to receive proposals for adoption by the American Standards Association and will process them into usable standards expeditiously."

Information should be sent to L. G. Cumming, technical secretary, Institute of Radio Engineers, Inc, 1 East 79 Street, New York 21, N. Y.

As a first step, the committee has been making a survey of standards in existence or in the process of preparation. The results have been summarized and published by R. F. Shea, representative of the American Institute of Electrical Engineers, as "Index of Nuclear Standardization Work." Copies can be obtained by writing to Mr Cumming.

The scope of the committee's work is officially stated as:

"Standards, specifications, and methods of testing for instrumentation in the nuclear field, including instrumentation for personnel protection, reactor control, industrial processes, analysis and laboratory work, radiation calibration equipment, and components therefor."

This has been broken down into more specific areas of interest by Dr A. B. Van Rennes, representative of the Society of Automotive Engineers. As explained by Dr Van Rennes:

"The topical structure is based on the recognition that:

a. One must first have an adequate set of definitions.
b. Standards required in the industry fall into four separate categories, which in general apply to every nuclear instrument or major component thereof:
   (1) *Measurement* of variables (neutron flux, dose rate, detector output signal, etc)
   (2) *Calibration* of radiation sources, components (including detectors), 'electronisms,' and complete instruments
   (3) *Methods of testing*
   (4) *Design and manufacturing* standards
c. Nuclear instrumentation equipment generally consists of an input transducer (detector), followed by some type of 'electronism' (which includes an output transducer). The detector receives its stimulus from a test source or a radiation field. In certain instances, such as for dosimeters or thickness gages, it will be desirable to write standards[1] on complete instruments, rather than components. In such cases, an instrument is considered to include a detector, an 'electronism', and perhaps a radiation source.

"In the chart, the first echelon of organization constitutes an umbrella structure, including fundamental definitions, standards on basic methods for measurement of radiation, and additional applicable standards, such as those already developed by IRE for definitions and measurement of pulses and other electronic quantities. Necessarily, considerable interdependence exists between the definitions and the standards for measurement; and cross-references should freely be used to relate the two.

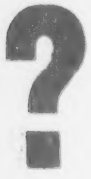
"Beneath the top echelon lies the hardware structure subdivided as described in (c) above. Note that the stimuli to the detectors or complete instruments may come from the test sources, or from the ambient radiation fields characterized in the echelon above. Within each hardware category there is a further breakdown into third or fourth echelons, as shown on the chart. Ultimately, each source, detector, 'electronism,' and instrument or group of sources, detectors, 'electronisms' and instruments is to be characterized by each of the types of standards outlined in (b) above."

In addition to its work on proposals for American Standards, the N3 committee is working with the International Electrotechnical Commission's Technical Committee 45 on international recommendations. W. H. Hamilton, chairman of committee N3, has been nominated to serve as chairman of the IEC committee. His nomination will be acted on at the IEC meeting in Madrid, June 30-July 10, 1959. R. F. Shea, AIEE representative on Committee N3, has been chosen to represent the committee in the work of TC 45. The first meeting of IEC/TC 45 is being planned for late in 1959.

Speaking of the work of Committee N3, Mr Hamilton says: "The N3 committee is not planning to prepare standards. Rather, its present operation is designed to process proposals from member professional societies after the proposals have been accepted by the sponsoring organizations."

[1]One is tempted here to use the word 'specification.' However, for purposes of this discussion, a specification is defined to be a set of requirements for an instrument as established by a customer or a manufacturer. A set of specifications may in turn rely upon, refer to, or incorporate various standards as supporting material."

WHAT IS *IMPORTANT* IN AN INDEX



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